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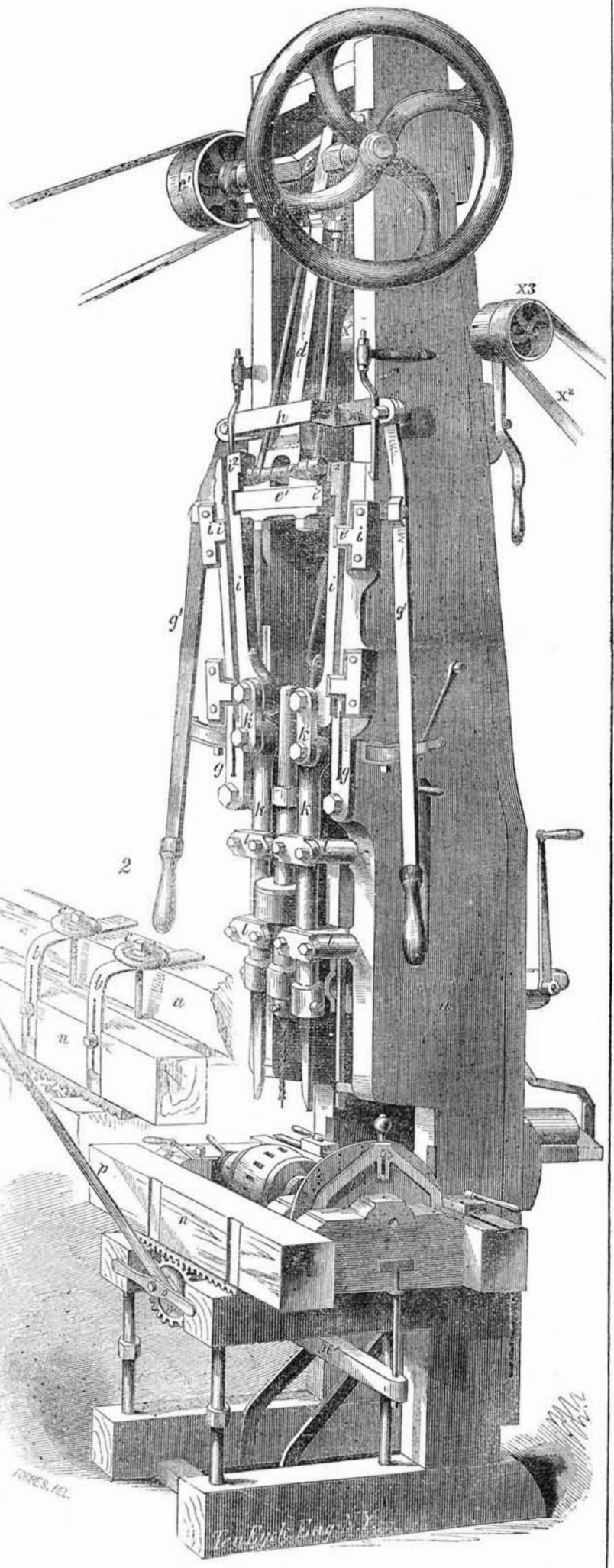
MORELAND AND NIXON'S MORTISING MACHINE.



Improved Mortising Machine.

This engraving represents a perspective view of the Mortising Machine and carriage of Messrs. Moreland & Nixon, of Adrian, Mich. for which a patent was granted to the former proprietor on the 22nd of Feb., last year. This machine has been recently introduced into the Crystal Palace, where we saw it at work on the last day the machinery was running prior to its being temporarily closed. It is capable of boring and mortising hubs, and framing of every description.

In figure 1 a hub is shown secured in the feed carriage, *n*, which is moved backwards and forwards by the lever handle, *p*, which is secured to the axis, *o*, of the pinion, *o'*, the said pinion taking into the rack on *n*. Figure 2 shows a square piece of timber—a beam or brace—secured by clamps, *b b*, which are worked by screws, *c c*, to secure the beam, *a*, in the carriage, *n*, and which can be substituted for the hub to be mortised and fed in the same manner. There is an index plate on the end of the spindle which secures the hub in its place, and there are small guides or dogs on the back of the feed carriage, which are set to stop it at the exact point, when it is being moved transversely to the action of the chisels.

The frame of the machine is composed of two strong upright supports, *a*, which are mortised into a strong cross tie at the top and united to a frame at the bottom. The bearing boxes of the driving shaft are near the top; C is the crank of the driving shaft—it works the chisels; *c'* is the driving pulley, and *c''* is a balance wheel; *d* is a pitman secured to the center of the crank. This pitman extends down and is connected to a sliding cross head or noddle iron. The pitman is of peculiar construction, it can be lengthened and shortened, so as to use up several inches of the chisels before they are renewed. The pitman is divided into three branches, the center one rests in a knuckle joint, *e*, in the cross head. The cross head slides up and down in V-shaped ways in the sides of the standards. The bar, *e'*, of the cross head projects a little at each side, and to this bar the slides which work the chisels are connected—clutched—and disconnected at will.

On the front side of either cheek there is a guide frame, *g*, fastened thereto at its lower end by a bolt. It is allowed lateral motion at its upper end, and also where it moves under the cap piece, *h*. This guide piece (one on each side) is moved back and forth by the hand lever, *g'*. Two slides, *i i*, work up and down in a right line in these guides. They are caused to move by the bar, *e'*, of the cross head of the piston rod. The stock box, K, of each chisel is united to the slide, *i*, by a strap, K', and moves in the ways, *l l*. The lever, *g'*, by pushing in the guides, *g*, make the square notches in the slides, *i*, clutch on the cross-piece, *e'*, of cross-head, and thus clutch the chisel with the connecting rod, *d*, which thus works the chisel with a rapid up and down motion. Both chisels may thus be operated at once, or after one another. On the top of the slide, *i*, there is a projection, i^2, which causes the slide to be raised to a certain point when detached, before it stops, to ensure the withdrawing of the chisel from the work before coming to a state of rest; a similar projection below prevents the slide from being carried so high that the slide bar, *e'*, cannot enter the clutch notch on the slide. Both chisels can be set in action or thrown out of it, by simply pushing in and drawing out the levers, *g'*, the slides clutching with the cross head bar, *e'*. The chisels are of ordinary construction, and are fitted into sockets.

There is an auger placed between the two chisels; it has a socket and receives its rotary motion by a band, X^2, from the interior pulley of the spindle on which is pulley X^3, driven by belt, X^2. This band passes down between the upright sides of the frame, and around a pulley which gives the vertical chisel stock a rapid rotary motion. A handle at the side sets this chisel in motion and out of it, at pleasure.

When a hub, as is now shown, is placed in the carriage and properly set. It is first bored out with the auger in the center of every mortise; when this is done the auger is thrown out of action, and one of the chisels clutched with the cross head, when it descends and forces out a chip, by every stroke, towards the center of the auger hole by its wedge action. When one side of the mortise is thus completed, then the chisel on the other side is clutched, and set in motion, and the other side of the mortise is completed. The same course is pursued with a beam or brace—the holes for the tie pins being bored at the same operation—the machine being a boring and mortising one.—There is a horizontal auger and spindle placed behind the hub now on the carriage, which can be used when required, for boring out the interior of a hub; it is driven by band and pulley. *n'* is a bar under the caps of the feed carriage, and attached at both ends to sustain the caps, and *t'* is the frame with the mandril head to secure the hub, which is substituted for that of figure 2, when hubs are to be mortised.

This machine is now on exhibition in the Crystal Palace. We have seen it at work mortising dry oak braces 4×4 inches, and also hubs of different sizes. It is a good machine, is well made, operates to our satisfaction, and seems to be complete in all its parts for perfect action.

More information may be obtained by letter addressed to Messrs. Moreland & Nixon, at Adrian, Mich.

Shipbuilder's Convention.

MESSRS. EDITORS.—I was much gratified to learn from your paper of the 15th, that the shipbuilders of Maine are awake to the importance of correcting the present mode of determining tunnage in the United States, and would suggest that a convention of shipbuilders be held in this city during the coming summer, to take such measures as shall effectually accomplish the object. Let the shipbuilders of each State appoint delegates to the proposed convention, the object of which would be to fix the basis of a law, and petition Congress for its immediate passage. It seems to me to be only necessary to fix a time and place for holding such convention, and the work is in a state of forwardness that will insure success.

JOHN W. GRIFFITHS.

New York, April 20, 1854.

Russia and China.

The double city of Niachta and Mauisachen, on the borders of the Chinese and Russian dominions, is separated by a line of pailings.—On one side is a prim little Russian town, in which commercial transactions,, to an enormous extent, take place every year. Crossing a little neutral ground, you enter a gateway, in a lofty wall, which completely hides the Celestial city; and this is the only lawful entrance from Russia to China. A magical contrast at once appears—on one side the youth, growth and change of the Russian, on the other the age, fixity and decrepitude of the Chinese system.

The Mississippi River is open to St. Paul, and emigration to northern Iowa and Minnesota has commenced.

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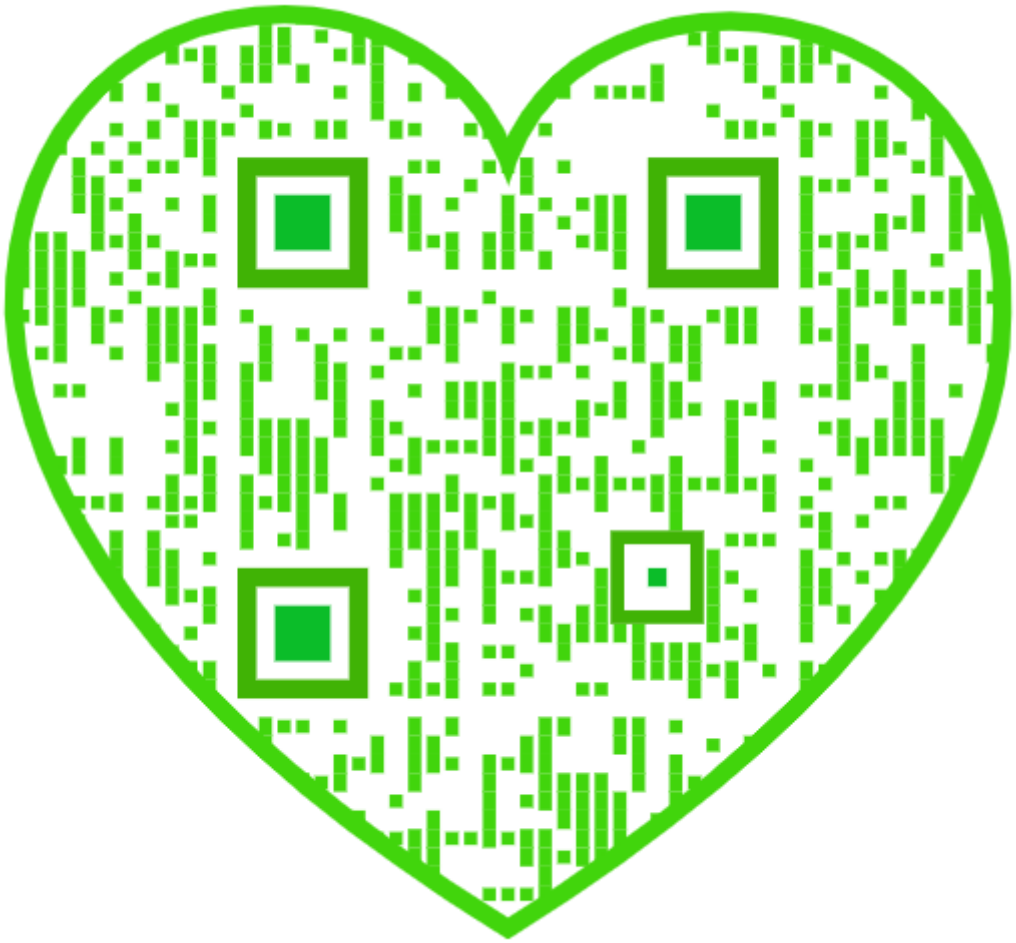

Cultivation of Flax for 1854.

The following are directions for the cultivation and preparation of flax, which has been issued this spring to the Irish farmers, by Messrs. Leadbetter & Co., of Belfast:

Choice of Soil and Rotation—By attention and careful cultivation, good flax may be grown on various soils; but some are much better adapted for it than others. The best is a sound, dry, deep loam, with a clay subsoil, or a light soil with clay subsoil. It is very desirable that the land should be properly drained and subsoiled, as, when it is saturated with either underground or surface water, good flax cannot be expected.

Without method there cannot be success: different soils require a difference of rotation. In the best soils of Flanders, flax is grown in the third year of a seven-course rotation, or the fifth year of a ten-course rotation. In Belgium it follows a crop of oats. It is a very general error among farmers to consider it necessary that flax should follow a potato crop. Except on very poor soils, a better crop will be produced after grain, and the double profit of the grain and flax secured. If old lea be broken up, and potatoes planted, followed by a grain crop, a very fine crop of flax may be obtained in the ensuing year.

Preparation of the Soil.—One of the points of the greatest importance in the culture of flax, is by thorough draining, and by careful and repeated cleansing of the land from weeds, to place it in the finest, deepest, and cleanest state. This will make room for the roots to penetrate, which they will often do, to a depth equal to one-half the length of the stem above ground.

After wheat, one plowing may be sufficient, on light, friable loam, but two are better; and, on stiff soils, three are advisable—one immediately after harvest, across the ridges, and two in spring, so as to be ready for sowing in the first or second week of April. Much will, of course, depend on the nature of the soil, and the knowledge and experience of the farmer. The land should be so drained and subsoiled, that it can be sown in flats, which will give more even and much better crops. Subsoiling should not be done at a less interval than two years prior to the flax crop. This gives the land time to consolidate. But until the system of thorough draining be general, it will be necessary, after oats, to plow early in autumn, to the depth of six or eight inches. Throw the land into ridges, that it may receive the frost and air; and make surface drains to carry off the rains of winter. If weeds make their appearance, cross-plough in spring, about a month before sowing, but only two or three inches deep, so as to preserve the winter surface for the roots of flax. Following the last harrowing, it is necessary to roll, to give an even surface and consolidate the land, breaking up this again with a short-toothed or seed harrow, before sowing, which should be up and down, not across the ridges, or anglewise.

Sowing—The seed best adapted for the generality of soils is Riga, although Dutch has been used, in many districts of the country, for a series of years, with perfect success. American seed does not generally suit well, as it is apt to produce a coarse branchy stem. If used, it should be on deep loamy soils. Dutch seed has been used frequently of late, and produced excellent crops. In buying seed, select it plump, shining, and heavy, and of the best brands. Sift it clear of all the seeds of weeds, which will save a great deal of after trouble, when the crop is growing. This may be done by fanners, and through a wire sieve, twelve bars to the inch. The proportion of seed for sowing may be stated at three and a half imperial bushels to the Irish or plantation acre.—(This is about 2 bushels to the imperial acre, the same as the U. S.) It is better to sow too thick than too thin; as with thick sowing, the stem grows tall and straight, gets only one or two seed capsules at the top; and the fiber is found greatly superior, in fineness and length, to that produced from thin-sown flax, which grows coarse, and branches out, producing much seed, but a very inferior quality of fiber. The ground being pulverised and well cleaned, roll and sow. If it has been laid off without ridges, it should be marked off in divisions, eight to ten feet broad, in order to give an equable supply of seed. After sowing, cover it with a seed-harrow, going twice over it—once up and down and once across or anglewise; as this makes it more equally spread, and divides the small drills made by the teeth of the harrow. Finish with the roller, which will leave the seed covered about an inch—the proper depth. The ridge should be very little raised in the center, when the ground is ready for the seed, otherwise the crop will not ripen evenly; and, when land is properly drained, there should be no ridges. The sowing of clover and grass seeds along with the flax is not advised when it can be conveniently avoided, as the plants injure the root-ends of the flax. But carrots may be sown, in suitable soils, in drills, so that the person pulling the flax may step over the rows, which may be afterwards hoed and cleaned and should have some liquid manure. A stollen crop of rape or winter vetches, or of turnips of the stone or Norfolk globe varieties may be taken, after the flax is pulled. Rolling the ground after sowing is very advisable, care being taken not to roll when the ground is so wet that the earth adheres to the roller.

Manure—Well rotted stable manure is as good as can be applied.

Weeding—If care has been paid to cleaning the seed and the soil, few weeds will appear; but if there be any, they must be carefully pulled. It is done in Belgium by women and children, who, with coarse cloth on their knees, creep along on all-fours. This injures the young plants less than walking over it. They should work, also, facing the wind, so that the plants laid flat by the pressure may be blown up again, or thus be assisted to gain their upright position. The tender plant, pressed one way soon recovers; but, if twisted or flattened by careless weeders, it seldom rises again.

Pulling—When any of the crop is lying, and suffering from wet, it should be pulled as soon as possible, and kept by itself. So long as the ground is undrained, and imperfectly levelled before sowing, the flax will be found of different lengths. In such cases, pull each length separately. When there is much second growth, the flax should be caught by the puller just underneath the bolls, which will leave the short stalks behind. If the latter be few, it is best not to pull them at all. It is most essential to take time and care to keep the flax even, like a brush, at the root ends.

Saving the Flax—This requires to be very carefully done, as inattention will reduce the value of the straw, and yield inferior fiber.—When made up, for drying in large sheaves, the straw is much injured, the outside stalks being much discolored by the heat of the sun, before the inside of the sheaf is dry, and the weight of the straw is reduced. The flax stems should be put together in bunches about one half larger than a man can grasp in one hand, spread a little, and laid on the ground in rows after each puller; the branches laid with tops and roots alternately, which prevents the seed-bolls from sticking to each other in lifting. It should be stooked as soon after pulling as possible, and never allowed to remain over night unstooked, except in settled weather. The stooking should go on at the same time as the pulling, as, if flax is allowed to get rain while on the ground, its color is injured. A well-trained stooker will put up the produce of a statute acre or more, in good order, in a day with two boys or girls to hand him the bunches. The flax should be handed with the tops to the stooker. The handfuls, as pulled, are set up without being tied, resting against each other—the root-end spread well out, and the tops joining like the letter A. The stooks are made eight to ten feet long, and a short strap keeps the ends firm. The stooks should be very narrow on the top, and thinly put up, so they may get the full benefit of the weather. In six or eight days, at most, after being pulled, the flax should be ready for tying up in sheaves of the size of corn sheaves. It is then ricked, and allowed to stand in the field until the seed is dry enough for stacking. To build the rick, lay two poles parallel on the ground, about a foot asunder (a very few poles will do an acre.) The flax is then built upon these, the length of a sheaf in thickness or breadth. The poles should be laid north and south, so that the sun shall get at both sides of the rick during the day. In building, the sheaves should be laid top and roots alternately, built seven to eight feet high, and finished on the top by laying a single row of sheaves lengthwise, or across the others, and then another row as before, but with the tops all the same way, which gives a scope to throw off rain, and finished by putting on the top a little straw, tied down with straw ropes, fixed to each end of the poles upon which the rick is built. In this way the bolls will be fully ripened for keeping in a stack, without the straw receiving injury by long exposure to the weather. If the straw is discolored, it is very much reduced in value. To preserve a fine yellow-colored straw should be the object.

Patent Office—Inventors Hall.

The Inventors' Hall, in the east wing of the Patent Office, will soon be finished. The frescoers are at work, ornamenting the ceiling, (supported by groined arches,) and affording satisfactory evidence of their artistic skill.—The imitation moldings appear to stand out in actual *bas-relief*, and excite general admiration. This is one of the largest halls in the country. Commodious and beautiful, it is a fit receptacle for the exhibition of the thousands of models of our ingenious countrymen; models of useful inventions and discoveries, many of which confer so many blessings on our age and generation. A passing glance, merely, is bestowed upon them by the visitors to the crowded room where they are now deposited; but while we see and admire the *material*, who can properly estimate the intense thought, the anxious days and sleepless night, the years of experiments, toils, and trials, the discouragements, and the struggles with poverty to produce the forms, and perfect the workings of the various contrivances!

But comparatively few of the inventors have reaped the reward due to their genius and sacrifices.—[Washington Sentinel.

Cast-Iron for Artificial Magnets.

M. Crahay found, several years ago, that cast-iron may acquire, by tempering, a coercive force sufficiently great to allow it to be strongly and permanently magnetized. The gray iron is the best for this purpose. The pot metal is too brittle, and the first quality of cast-iron gives but moderate results.

The permanence of the magnetism depends on the temper. A bar tempered at a dull red heat, may be powerfully magnetized, but loses its force in twenty-four hours. If the tempering is done at a red heat, the bars not only will take a powerful magnetism, but keep it indefinitely. Experiment has shown that the following is the best mode of tempering large bars:—They are to be heated to redness in a wind furnace, then withdrawn, one by one, the two faces of the bar are sprinkled for three-fourths of their length with yellow prussiate of potassa, and immediately plunged into a great mass of cold water, stirring it about violently. A little more thickness should be given to bars of cast-iron than to steel.—[Jour. of the Franklin Institute.

Naval Steamers in the Bosphorus.

An American residing in Constantinople, thus writes about the war fleet now there:—'In the Bosphorus I saw the finest collection of naval steamers in the world, the most efficient of which was the 'Agamemnon,' a British ship-of-the-line, mounting ninety guns.—She has trunk engines, built by Penn & Son, and has a two-bladed propeller, arranged to be lifted up out of the water when not in use.—(This is the almost universal arrangement in the English navy.) They told me her average speed at sea was ten knots, but they brag so of their ships that it is hard to believe. They say, however, that she is the finest and most efficient steamer in the navy—I believe they might say of the world" * * * Their side-wheel steamers are also splendid specimens.

I saw thirteen steam frigates mounting each forty guns of heavy caliber. Their sloops (as they would term the United States steamer 'Saranac') are much faster than their frigates; but in a race of seven hundred miles with the 'Highflyer,' the 'Saranac' beat her eighteen hours, although they call her a twelve-knot ship. In this race the 'Saranac' averaged but ten knots. The French steamer 'Napoleon' has returned to Toulon a dead failure."

Hair and Feather Trade of New York.

The "Journal of Commerce" has an interesting article on the "Hair and Feather trade" of this city, from which we make the following extract:

"The local trade of this city, in these two articles, may be estimated at $3,000,000. The firm most largely engaged in it is Mellen, Banks & Pomroy, who purchase feathers and hair in the markets of Russia and South America, and work up the raw material in their own factories. The annual consumption of hair by this single establishment is equal to about $700,000, and of feathers, about $1,000,000.—The former is principally procured from South America, where the wild horses are killed for their hides and fat, and the product of their manes and tails. The fat, upon arriving at New York, is transmuted into soap, and is doubtless often admired for its aroma, and variegated colors. Russia also furnishes as large quantities of hair, as of feathers. For upholstering purposes Ohio hog's bristles are used, and it is barely possible that this kind of hair sometimes gets mixed with the descriptions designed for mattresses, &c., There are annually used by the establishment referred to, 1,000,000 pounds of South American hair, 200,000 pounds Russian, and 700,000 Western. Of feathers there are used, 1,000,000 pounds Western, and 1,500,000 pounds of Russian. The process is as follows: From the bales it is thrown into a "picker" making eight hundred revolutions per minute, and then twisted into ropes by machinery, to make it curl. The next process is to boil it, that it may be thoroughly cleansed, for which purpose it is put into vats, heated with "exhaust" steam from the engine; this done, it is thoroughly dried in an oven.—The ropes of hair are then ready to be picked into pieces for use. In connection with the principal establishment, in all its departments, 163 men are employed. Formerly, moss, procured from trees in the Mississippi valley, was extensively used, but is now discarded, almost altogether."

[We think there must be some mistake about the moss, for we often see great quanti ties of it for sale in some of the stores.

Extent of the Public Domain.

A report made by the Commissioner of the General Land Office to the Secretary of the Interior, and submitted to the House of Representatives on the 21st ult., by President Pierce, in response to a resolution of that body, explains a very material error which has crept into previous official estimates of the extent of the national domain. By the former statements made by the land office, the whole surface of the public domain is made to cover 1,612,184,919 acres, but by the statement now furnished it is reduced to 1,391,480,320 acres, making a difference of 220,704,599 acres. This discrepancy is explained by the fact that Oregon, the proposed Nebraska and the Indian territories, were set down in the former statement as containing 764,197,760 acres; which was in accordance with an estimate of the public domain west of the Mississippi river, made many years since on the most correct maps then in existence, reduced from time to time by deducting the estimated surface of the organized territories. But by re-estimating the surface according to the improved maps of the day, and the new divisions thereof by the recent legislation of Congress, and the bills now pending before that body, it is found, as now stated, to cover only 543,493,120 acres.

Steam Frigates.

The six steam frigates which have been ordered to be built, will be constructed at the Government navy yards. It is generally believed that none of the work will be done by contract with private companies, but so far as we can learn, none of the navy yards have now the means to construct and finish the entire engines.

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[Reported Officially for the Scientific American.]

LIST OF PATENT CLAIMS

Issued from the United States Patent Office

FOR THE WEEK ENDING APRIL 18, 1854.

[ERRATUM—The month of MARCH has been inserted in the date heading the claims, for the last three weeks,—it should have been APRIL.]

BRICK MACHINES—Stephen Ustick. of Philadelphia, Pa. Ante-dated Nov. 15, 1853: I do not claim, in general, the combination of the reciprocating mold boxes with the stationary and movable pistons: nor do I claim merely feeding the clay through the side of the mold box at right angles to the line of motion of the piston, as these features exist in other machines.

But I claim the arrangement, as described, of the mold box with the fixed and movable piston, whereby by its motion in the line of motion of the piston, it is made to perform the function of feeding the clay between the pistons, shutting it off from communication with the hopper, and discharging the brick.

Second. I claim the apparatus for receiving and delivering the brick, consisting of the hand, table, and finger, arranged and operating as described.

Third, I claim the arranging on the cam wheel the oil boxes for lubricating and cleaning the faces of the pistons.

Fourth. I claim the withdrawing the condensed air from the mold while the pressure is produced by the groove and scraper, or other equivalent devices, as set forth.

CIRCULAR SAWING MACHINE—Stephen Waterman. of Williamsburgh, N. Y.: I do not claim hanging the shaft of a circular saw in a swing frame moving around a stationary axis.

But I claim, first, raising the saw shaft by any mechanical means analogous to those described, to bring the collar and nut or other device by which the saw is secured thereto, to a fixed position above the level of the plane of the top of the carriage and close under the unsquared portion of the log, during the cutting of the slabs from the log, so that the slabs may be cut from a much larger log then when the saw shaft or the collar and nut, or other device for securing the saw thereto, remains below the level of the plane of the top of the carriage.

Second, controlling the tension of the driving belt, so that it shall be tight when the saw shaft is in position for cutting either above or below the log, but slack at other times, by means of the three guide rollers, of which the first two are hung on axes, in arms secured firmly to the rock shaft, and the latter is hung on an axis in swinging arms, which are held in proper position when the belt is tight, by contact with fixed arms on the shaft, as set forth.

Third, a dog of the lever form described, attached below each or any of the slides by which the log is moved laterally, so that its tooth will project beyond the face of the said slide and under the log, and controlled by a screw through the slide, by which its tooth may be forced upwards into the log when desired, as described.

[A notice of this improvement is published on page 76 of this volume.]

TAILORS' MEASURERS.—M. T. Rowlands, of Pittston Ferry, Pa.: I claim the front, side, and back scales, or their equivalents, constructed as described, and used in conjunction for the purpose of taking the measures of persons and cutting garments to fit them, as described.

MACHINE FOR BLEACHING FLAX—J. A. Roth and J. Lee, of Philadelphia, Pa.: We claim, first, the employment of the series of combs for the purpose of sustaining the fibers, constructed and arranged as described.

Second, the flax or yarn frame and method of arranging the combs in combination therewith, as described.

Third, the combination of flax and yarn frame and vat, as described.

IRON FENCES—M. P. Coons, of Brooklyn, N. Y.: I do not claim any particular device or construction of a post or straining pillar, nor any particular mode of attaching wire or rods to them.

I claim combining a spring bar with the rails, wires or other equivalents of metallic fence, as set forth, for the purpose of yielding to pressure or strain arising from change of temperature.

MACHINE FOR WINDING AND FOLDING CLOTH—Thos. P. Forsyth, of Dalton, Ind.: I claim the use of the stretcher in combination with the adjustable guides and slides, and the winding shaft (or the bits, as the case may be) in the manner described.

TURNING LATHE—Garret Meldrum, of West Philadelphia, Pa.: I do not claim the mechanical arrangements or combinations for sustaining and communicating a revolution to the machine, as these are common to all lathes; nor do I claim or prescribe any particular kind of tool rest or cutter, as these are also common.

But I claim, first, the chucks and pinions with their mandrels passing through the bosses in the chuck plate, in combination with the central spur wheel, as described.

Second, I claim the palls and their ratchet notches in combination with the chucks.

Third, I claim the screw bolt, in combination with the concentric slot, in the center wheel, and the indicator with the regular divisions or their equivalents marked on the wheel, for the purposes described.

Fourth, I claim the adjustable tail rest plate, having bosses to correspond with the corresponding bosses in the chuck plate, in combination with the screw mandrels and their jam nuts, the said tail rest plate being adjustable on the main shaft, as described.

SPIRAL SPRINGS FOR RAILROAD CARS—F. M. Ray, of New York City: I am aware that flat volute or coiled springs have been applied to carriages with the weight or force acting in the direction of the volute or coil, the center of the spring being connected with the running gear, and the body of the carriage suspended to the outer end of the coil, from which it follows that the lateral thrusts of the carriage must act incidentally on the spring in or nearly in a line parallel with the axis of the spring. but in such mode of application, the force in that line being merely incidental, the spring is not and cannot be coiled and confined close in a surrounding case, for the play of the spring being in the direction of the entire freedom between the several coils is indispensable, and hence the several coils do not mutually support each other, as under my mode of application, in which the coils are in contact, or nearly so, with each other, and thus held by a surrounding or confining case. I do not therefore claim the application of force to a flat volute or coiled spring, irrespective of the manner in which the coil is made and confined, so that the several coils shall support each other on the principle specified.

I claim the employment of a flat volute or coiled spring with the outer coil supported by the outer case, as specified, when this is combined with the application of the weight or force to the inner and outer coils, in lines parallel, or nearly so, with the axis of the spring, as specified.

And I also claim the employment of one or more conical surfaces, or the equivalents thereof, as specified, in combination with the coiled spring, as specified, for the purpose of reducing the active length of the spring as the weight or force applied is increased, as specified.

MACHINES FOR PARING APPLES—J. D. Seagrave, of Milford, Mass.: I do not claim, in general, the device of combining with a paring machine in which the paring nife moves automatically over the apple a sliding piece, moved automatically in regular alteration with he movements of the knife in such manner as to push the apple from the fork at the completion of the paring, because such device has been used before in the apple parer of Charles P. Carter, patented Oct. 16, 1849.

But I claim the specific mechanical arrangement, viz., the sheath made to slide upon the spindle or axis of the fork, and operated by the wire lever, which is impelled at the proper moment by the pin on the wheel, as set forth.

GAS REGULATORS—G. B. Dixwell, of Boston, Mass., and J. A. Dorr, of New York City: We claim an improvement on the form of gas regulator, described as Clegg's, and other similar gas regulators, by disconnecting from the regulating gasometer thereof the surface which is interposed between the main and the branch, and upon which the disturbing pressure of the gas in the main operates, and which in those regulators is connected with the regulating gasometer, and connecting the regulating gasometer with a tube, or its equivalent apparatus, which is not disturbed by the varying pressure of the gas in the main, in the manner described.

CAR COUPLINGS.—Geo. Aulick, of Winchester, Va.: I claim constructing a metallic box with vertical grooves and an inclined trough or slide chamber, and using in combination therewith a vertically operating valve-like catch, formed with a convex or oval side and a bevel-like lip or projection, together with a gravitation or self-acting bolt or sliding latch specifically as described.

BOX MACHINE—Ari Davis, of Washington, D C.: I claim the corner fastened in the manner dsscribed, by forming a miter joint and scoring the outside of the box as described, and fastening the two parts at the corner by the angles of metal, as specified, without the use of nails or screws therefor. I also claim the combination of saws and cutters for forming the joint, as described.

PAINTING WINDOW BLINDS—S. T. Field, of Worcester, Mass.: I do not confine myself to any particular devices for holding the blinds or other articles, as they may be varied to a considerable extent.

But I claim the described mode of painting or otherwise coating blinds, or any other articles, by dipping them in a vessel containing the paint or other material, and the giving them a revolving motion within a cylinder, box, or case, to throw off the superfluous paint or material, as set forth.

[The inventor informs us that he has operated this improvement to much advantage.]

ATTACHING PROPELLERS TO THE DRIVING SHAFT—J. L. Cathcart, of Washington, D. C.: I claim attaching the propeller, secured to a short shaft, which passes through the rudder, to its main or driving shaft by a universal joint placed between the stern post and the rudder, by which attachment the propeller is moved laterally with the movement of the rudder.

WATER WHEEL—G. M. Conner, of Charlton, N. Y.: I claim enlarging and contracting the vent or discharge orifice, so as to correspond to the inlet passage by means of the ring formed of three sections attached to each other, as shown, and connected to the crank arm of the gate by the lever, as set forth.

[The inventor claims to have made a valuable improvement on water wheels.]

CLEANING BLINDS, ETC.—George W. La Baw, of Jersey City, N. J.: I claim this machine and the application of it for cleaning doors. blinds, shutters, and panel work generally.

HEATING, WARMING, AND COOKING BY GAS—G. B. Pettit, of Westminster, Eng. Patented in England Oct. 22, 1851: We claim making gas burners for heating and cooking purposes, with minute apertures from an inverted or inclined surface or surfaces, as described, so that the upward current or currents of atmospheric air shall be made to impinge and act on the issuing gas at the point or points of issue, on the principle and for the purpose specified.

We also claim combining with burners constructed and operated on the principle specified, a chamber through which the gas shall pass to supply the issues, and so located that the flame shall impinge against the surface thereof, for the purpose set forth.

LANDING NETS FOR ANGLERS—Chas. De Saxe, of New York City (assignor to T. H. Bate of Brooklyn, N. Y.): I claim the construction and arrangement of a landing net in one compact and connected mechanism attached to the shaft, made as described. so that it can be folded up upon the staff, or expanded, at the pleasure or convenience of the user.

FISHING RODS AND FLOATS—Chas. De Saxe, of New York City (assignor to T. H. Bate, of Brooklyn, N. Y.): I am aware that fishing rods have been often constructed so that the different pieces or lengths should slide within each other, and I am also aware that these various pieces have been made of different lengths, the largest one being the longest, so that there would be a space in the largest not occupied by the other lengths, but so far as I have been able to learn, this space has never been rendered useful by converting it into a safe and convenient receptacle for carrying the various implements and contrivances belonging to the angler's art, such as hooks, hackles, leads, swivels, &c.

I do not claim the peculiar construction of the rod, but I claim the combination of the tackle safe, with the rod, as set forth, and so that the whole combination forms but a single article, compact, safe and convenient.

I claim, also, the peculiar construction of the float, as set forth, by which the slightest touch at, or interference with the hook, causes the line to be suddenly moved or jerked as if by a quick motion of the hand, and the fish to be thereby hooked, and whether the float is used with the combination set forth, or separately therefrom.

POTATO WASHING MACHINES—J. H. Fairchild & Sylvanus Richardson, of Jericho, Vt.: We claim the manner described of constructing the machine with an outer solid revolving cylinder, for containing water and catching the dirt removed from the roots with an inner slatted cylinder which is secured fast to the outer cylinder, and revolves with it for removing the dirt and foreign matter from the roots and discharging them in a clean state at one end of the machine, in combination with the spiral or screw thread placed in a spiral manner between the two cylinders, for the purpose of separating the dirt from the washed roots and effecting its discharge simultaneously with the discharge of the roots at the opposite end of the machine through the passage, as set forth.

[This improvement is noticed on page 12 of this volume.]

PORTABLE LADDER OR FIRE ESCAPE—Thomas Armitage of Philadelphia, Pa.: I claim the mode described, of constructing an extension rescue or ladder by means of a series of knee-shaped pieces, and a series of rungs of unequal and graduated length, combined and operating as described,

OYSTER KNIFE—Philos Blake, of New Haven, Conn.: I am aware that the noses of oysters have been broken in order to give entrance to the knife by inserting them between the tines of a common fork or other similar instrument and therefore I do not claim the use of the parallel cheeks for this purpose.

But I claim combining the said cheeks with the knife in one instrument, whereby the opening of oysters is accomplished with greater ease and expedition.

SLITTING GAUGES—James Ballard, of Ashtabula, Ohio: I claim the slitting gauge head made in two sections, with or without friction rollers, when said sections are united together at the center of their length by a pin, or its equivalent, for the purpose described.

I also claim the arrangement of the friction rollers, for the purpose described.

[See notice of this invention on page 304 of this volume.]

FAUCET—R. M. Bouton, of West Troy, N. Y.: I do not claim the discovery of any new principle, neither do I claim any of the parts separately.

I claim the combination of the piston, cam, and lever, as described, with or without the toggle joint, for the purpose of closing the valves of liquor faucets.

FLY TRAPS—David & S. K. Flanders, of Parishville, N. Y.: We claim the horizontal circular rotating disk, divided on its upper surface by the ledges into sections, which sections, as the disk rotates, pass underneath a cover of the box, which box contains a wiper that sweeps or traverses over the surfaces of the sections, as they pass under the cover, and throws the flies into the box and behind the wiper; the disk and wiper being operated by clock machinery or its equivalents, as described.

[This ingenious trap is noticed on page 100 of this volume.]

GRASS HARVESTERS—Martin Hallenbeck, of Albany, N. Y.: I claim the peculiar construction of the fingers, as shown, viz., having ribs at the lower parts of the fingers and vertical slots passing through the fingers on each side of the ribs and inclined plates attached to the fingers and ledges at each side. The plates preventing the sickle from clogging, and the ledges preventing the grass from being thrown out from the fingers by the action of the teeth.

[See notice of this improvement on page 28 of this volume.]

CLEANING COTTON AND OTHER FIBROUS SUBSTANCES—J. C. Hard, of Medway, Mass.: I do not claim the use of teeth made of pointed wire and screwed to the beaters of cotton pickers; neither do I claim the application of springs to the concave of machines for operating upon fibrous materials.

But I claim the use of the peculiar combing beater described, the teeth being so curved as to bring the beater very near to the feed rollers, and united with each other at their bases, in the manner of saw teeth, as set forth.

Second, I claim the peculiar method described, of applying springs to the slats of the grating beneath the beaters, each slat being furnished with independent springs, whereby the moats, as they fall upon the grating, are instantly knocked through the spaces beneath the slats, and are not carried round by the beater, to be again entangled with the material, the slats yielding to permit the impurities to pass between them.

Third, I claim the introduction of heated air into machines for picking and dusting cotton, by which a greater uniformity of the numbers of the yarn is obtained and the material is more thoroughly and readily cleansed.

TICKET BOX FOR RAILROAD CARS—David A. Hopkins, of Elmira, N. Y.: I claim the box, constructed as described, viz., said box having a sliding frame in front provided with a glass, and having spaces or chambers at its upper part, formed by the plates at the back of the frame, for the reception of the tickets, the tickets being retained in said spaces or chambers by means of the springs, and forced at the back of the lower part of the box when pressed down from the spaces by means of the springs, as set forth.

[Mr. Hopkins has made several improvements in railroad apparatus of various kinds. See notice of this on page 156 of this volume.]

OPERATING DUMPING CARS—A. C. Johnson, of Meadville, Pa.: I do not claim transporting earth or other substances by means of cars attached to a chain passing over pulleys, the chain being endless or otherwise. Nor do I claim the arrangement of an upper track above the lower, so that one set of cars may pass above, while the other passes on the lower rails, as this has been done before.

I claim the construction of the balance beams arranged as described, for the purpose of passing one set of cars over another set running in an opposite direction on the same track.

I also claim the arrangement of the rails in combination with that of the car wheels, as described, for the purpose of rendering the cars self-dumping, or any other modification of the same.

COOKING OYSTERS—L. P. Keach, of Baltimore, Md.: I do not claim of itself cooking by jets of flame applied to the shell or covering of the article of food to be roasted.

But I claim the method described, of roasting oysters or other articles of food having a shell or similar natural covering, by arranging the oysters on supports at a suitable distance apart for the play of the flame of gas issuing from gas pipes or burners, on or against their shells, when the said burners are so arranged that the flame of the one burner jetting horizontally, or slightly dipping from the horizontal position, impinges and acts upon the top shell of one oyster, and the bottom shell of another, as set forth, whereby the fish is more thoroughly cooked, and one burner serves for two oysters, as specified.

FIRE ESCAPE—Geo. W. Keller, of Philadelphia, Pa.: I claim the double chain in combination with the friction rollers and guards, as set forth.

PROCESS FOR BLEACHING FLAX—J. A. Roth and Joseph Lea, of Philadelphia, Pa. Patented in England May 26, 1853: We claim the process of distributing the flax fiber or yarn upon combs, or equivalent devices, and agitating the same when immersed in chemical bleaching solutions, as described.

MACHINE FOR FILLING MATCH FRAMES—Anthony Sohn, of Monroeville, Ohio: I claim, first, the combination of the bottomless, shaking, or reciprocating box or hopper and the fixed bed, which is grooved transversely to the motion of the box, but longitudinally to the direction of the matches, as described, for the purpose of separating a number of matches, and laying them parallel in a row at a required distance apart.

Second, the reciprocating series of rods in combination, as described, with the grooved bed, for the purpose of pushing the matches longitudinally from the grooves into the frame.

Third, placing the match frame, for the purpose of being filled, in an upright fixed frame, which is furnished with a sliding balance cross-piece, containing a movable step, which is capable of being protruded through the said cross-piece between the sides of the match frames, and withdrawn therefrom for the purpose of receiving the slats and matches, nearly on a level with the grooved bed, and lowering them into the match frames, until the latter are full, and then being withdrawn therefrom to leave the matches in the frames, and leave the frames free to be taken from the machine, as described.

[A good improvement; see notice on page 364 of Volume 8.]

MACHINE FOR OPENING OYSTERS—W. H. Towers, of Philadelphia, Pa.: I claim opening oysters and other bivalves, without injury to the hands, by firmly enclosing them between jaws and forcing a knife, having spring guides on its sides, of the form described, between the shells, as set forth.

MAIZE HARVESTERS—Wm. Lapham, executor of Seneca Lapham, dec., late of Salem, Ohio: I claim arranging and operating the reel that is hanging the reel on a frame working vertically in ways and supplied with suitable stops for receiving and discharging at intervals the cut maize, as set forth.

RE-ISSUE.

COTTON GIN—Fones McCarthy, of Orange Springs, Fla. Patented originally July 3, 1840: I claim the combination of a stripping plate, breast plate, and drawing roll, as set forth.

DESIGN.

COOKING STOVE.—William T. Coggshall, of Fall River, Mass.

[NOTE—In the above list of patents, nine of the applications were prepared at the "Scientific American Patent Agency." Inventors who desire to employ us in securing their inventions, can consult us by letter.

Sewing Machine Decision.

The decision of Judge Sprague, of Boston, in the sewing machine suit, appears in my humble opinion, a singular one. The first inquiry, was this (Hunt's) machine ever perfected? and 2d, had it not been abandoned and forgotten before Howe's invention. The idea that a machine "cannot become public property unless it has been perfected," is a curious one, and that, "if Mr. Hunt did not go the extent of having perfected a machine, although he made many ingenious devices, it was in the eyes of the law a nullity; it gave nothing to the public." If such is the law why does it require the inventor on application for a patent, to give his oath or affirmation that "he does verily believe that he is the original and first inventor or discoverer of the art, machine, composition, or improvement, for which he solicits a patent, and that he does not know or believe that the same was ever before known or used," and why does it instruct the Commissioner of Patents that "whenever, on examination, it shall appear to him that the applicant was not the original and first inventor or discoverer thereof, or that any part of that which is claimed as new, had before been invented or discovered, or patented, or described in any printed publication in this or any foreign country, as aforesaid, or that the description is defective and insufficient, he shall notify the applicant thereof, giving him briefly such information and references as may be useful in judging of the propriety of removing his application, or of altering his specification to embrace only that part of the invention or discovery which is new." If the law does not give the "many ingenious devices" of Hunt's invention to the public, I cannot, for the life of me, see who they could fall to. As (according to your paper) the Judge did not quote the law upon which he founded his decision of the relative merits of Hunt's and Howe's invention, he might perhaps have had the Scripture law in his mind's eye. "That to him that hath shall be given, and from him that hath not shall be taken even that which he hath." It is not unfrequently the case that the first inventor, although unsuccessful in his attempts to accomplish what he aims at, may be the most ingenious and deserving. It seems by the admission of the learned Judge that a part of the machine of Hunt was of "practical utility," and as similar to Howe's, so that according to his own showing all that Howe copied from Hunt was common property and ought not by law to be claimed by him. You very justly observe that "one thing is greatly to be regretted, namely, that whenever a patent becomes valuable, there seems no end, at least for some time, to the trouble of the real benefactor." It is but too true, and such decisions, as Judge Sprague's only has a tendency to make "confusion worse confounded." I would not have trespassed thus far on your valuable time were it not for the interest I feel for a just and impartial administration of the laws.

EDMUND FIELD.

Greenwich, Conn.

[Our correspondent is perfectly right so far as he discusses the principles of the Patent Law, but not their application to this case. It was perfectly evident that Hunt had constructed a sewing machine, but not one of his *ingenious devices* had been given to the *public*, consequently the public could have no property in them. Those who obtain patents for inventions, have the exclusive right to the use, sale, and construction of the same for fourteen years, upon the condition of making them public, and no other. A person might construct and use a machine in secret for twenty years, and not give anything to the public, and after that if another person invented the same machine, he could obtain a patent and restrain the first inventor from using *his* machine. In the dark ages all inventions were kept secret, and this is why the arts made so little progress, until a sensible patent law was made to encourage the publication of new inventions, for the benefit of the public.

No evidence was adduced to prove that Howe ever heard or knew anything about Hunt's machine; in fact, nobody knew much about it but the inventor himself. What benefit did the public directly or indirectly ever derive from that machine? None. If every abortive attempt to construct a good machine were to be brought up and held supreme over subsequently invented perfect working machines, then there would be no encouragement to genius, and no safety for any patentee. Hunt's machine might have lain past 100 years longer, and what good would it have done the public? None. The decision of Judge Sprague was perfectly correct, and no one can justly find fault with it, when it is considered that whatever was useful in Hunt's machine he might have secured by law. Whatever was public property in sewing machines—invented by Hunt or any person—prior to the time Howe secured his patent, is public property still.

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New Inventions.

Spark Arresters.

G. B. Simonds & Abel Breaer, of Saugatuck, Conn., have made an improvement in Spark Arresters, which consists in arranging an elliptical conical deflector in the upper part of the case, and combining it in such a manner with a flange extending around down the draft opening, by which the exhaust is made to act upon the sparks in such a manner as to force them into a side chamber.

The capacity of the spark chamber is also increased, and likewise the deflecting surface, at the same time lessening the resistance of the smoke stack by making it of an elliptical form, which thus displaces less air in passing through the atmosphere with its least diameter of displacement, thereby tending greatly to remove the evil of a trail of smoke following in the wake of the stack before the eyes of the engineer. The flange around the draft opening is made adjustable for the purpose of regulating the escape of the sparks, so as not to have one escape while passing through a city, village, or any place where there is any danger of setting anything on fire. Measures have been taken to secure a patent.

Improved Slide Valves.

Wm. E. Davis, of Paterson, N. J., has taken measures to secure a patent for an improvement on slide valves for steam engines, the object of which is to free the valves from the pressure of the steam on the back side, and cause it to be nearly balanced. The back of the slide valve is made in the form of a box, or attaching thereto a box of nearly the same size of the valve, to receive a piston, or movable packing, having a face parallel with the face of the valve, and working in contact with the inner face of the steam chest cover, thus preventing the exposure of the back of the valve to the pressure of the steam.

Flasks for Casting Railroad Wheels.

Joseph Usher, of Cincinnati, Ohio, has applied for a patent for an improvement in Flasks for casting railroad wheels, the object of the improvement being to allow of a good and perfect mold to be made with a comparatively small quantity of sand, and also to obviate the necessity of hand-ramming. These objects are accomplished by constructing the top of the flask in such a manner as to enable the sand to be packed close by the pattern and to enable the sand to be hung or sustained in it, when the flask is complete.

Operating Churns.

H. B. Peck, of West Butler, Wayne Co., N. Y., has taken measures to secure a patent for a method of operating churns. He combines the ordinary clock movement, or an arrangement of similar mechanism with a rotary or other churn, for the purpose of giving a regular and constant motion to the dashers.

Smut Machine.

J. D. Bedwell, of Uhricksville, Ohio, has made an improvement on smut machines, for which he has taken measures to secure a patent. The improvement consists in the employment of a blast trunk arranged in a peculiar manner, and also a stationary and revolving cylinder, having vertical metal bars overlaping one another, which give them a corrugated surface, and at the same time allow the current of air to pass through them, for the more perfect separation of the smut, &c., from the pure grain.

Apparatus for Filling Bottles.

Leonard W. Cheney, of Chelsea, Mass., has invented an improvement on apparatus for filling bottles, jugs, &c., The nature of the invention consists in securing a funnel through which the liquid passes into the bottle or jug, in an adjustable arm, which allows the funnel to be placed some distance above the mouth of the vessel to be filled, and thereby causes the liquid to enter the vessel in a small stream, and thus allow the air to escape from the bottle while it is being filled. Measures have been taken to secure a patent.

Machine for Cutting Corn Stalks.

J. S. Burnham, of West Jefferson, Ohio, has applied for a patent on an improved machine for Harvesting corn stalks. The machine has an oblique self-adjusting platform with cutting edges, the cutters being made to cut upwards in a slanting direction with great ease. There are horizontal collecting reels on the machine, the arms of which are elastic and combined peculiarly. with guards and fenders to bring the stalks into a proper position to be cut, to prevent them after being cut from falling crosswise the machine, and also to hold them until a sufficient quantity is cut to form a bunch.

Ringing Bells by Steam.

Measures have been taken to secure a patent by G. B. Snow, of Buffalo, N. Y., for a new method of ringing the Bells of Locomotives by the force of steam. The bell is swung in one direction by attaching it to a piston rod of a single acting steam engine, instead of ringing it by hand.

LUBRICATING BOXES.

Figure 1.

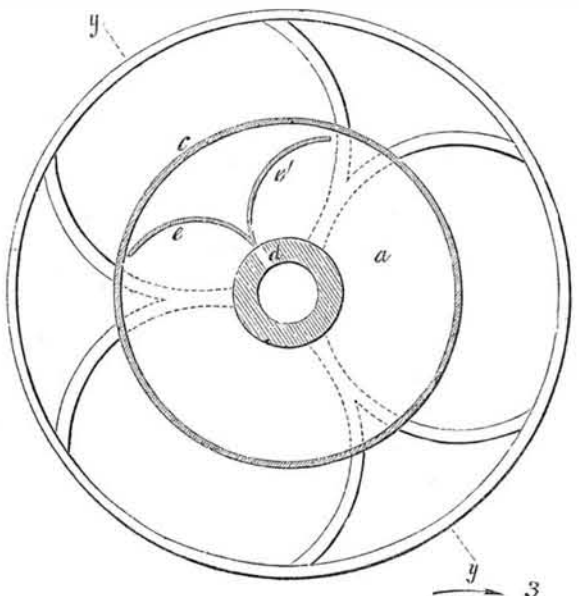
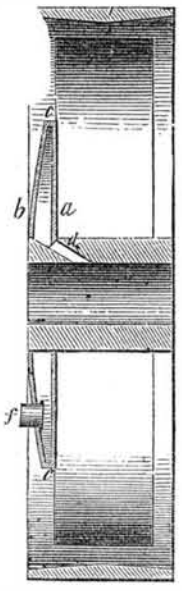


Figure 2.



The annexed engravings are views of an improvement in oil boxes to be attached to loose pulleys, wheels, couplings, &c., for the purpose of oiling the interior of the hub. The inventor is B. E. Parkhurst, of Brunswick, Me., who has taken measures to secure a patent. This invention consists in surrounding the hub with a box containing a conductor or conductors, which prevent the oil in the box when the wheel or pulley is in motion, being all thrown towards the outside by centrifugal action, and which conduct a sufficient quantity through an oil hole provided in the hub.

Figure 1 is a side view of a pulley. with a section of the oil box; figure 2 is a section of the pulley and oil box in the line, *y y*, figure 1; figure 3 is a transverse section through the hub.

In figures 1 and 2 the oil box is represented as being formed by two circular plates of light sheet metal, *a* and *b*, each having a hole through the center to fit the hub. The hub is turned as far as the arms to receive the plates. The plate, *a*, is flat with a rim, *c*, turned round the edge, and it is placed on the hub close up to the arms and then soldered to the hub. The plate, *b*, is concave on the side next to *a*, and is soldered to the hub and to the rim, *c*, of *a*. The oil hole, *d*, in the hub comes between these two plates. This box contains two conductors, *e e'*, one for conducting the oil to the oil hole when the pulley revolves in one direction, and the other when it revolves in the opposite direction. These conductors are formed of thin sheet metal, and extend across the oil box, from the plate *a* to the one *b*. They are soldered to the former plate before the latter is put on the hub, both starting from the oil hole, (which they cross) and curving away from each other nearly to the outside of the box. The outer plate, *b*, has one or more holes for the admission of oil. These holes are closed by corks, *f*, or by valves of any suitable kind, but if they are made very near the hub they may be left open.

The box in figure 3 is represented as being made by turning a groove, *h*, in the hub, of any suitable width and depth to contain a desirable quantity of oil. One or more oil holes, *d*, are drilled through the bottom of this groove, and a strip of thin metal, *e*, is placed across the groove so as to divide the oil hole, *d*. A metal band, *i*, of a width sufficient to cover the groove, *h*, is then shrunk upon the hub over the groove, *e*, forming a box. The oil is introduced through one or more holes in the band, *i*, and these are closed with the corks, *f f f*. This description explains all the parts, their construction and arrangements.

The revolution of the wheels or pulleys, causes the oil in the oil box to be thrown towards the outside by centrifugal action, but as it comes in contact with the conductor, *e*, or *e'*, it is made to run down towards the axles, and is conducted into the hole, *d*. In boxes of depth like that represented by figures 1 and 2, the curved conductors answer best, but in shallow boxes like figure 3, a strip of metal placed radially will answer as well.

The supply of oil to the bearing is regulated by the size and number of the oil holes, *d*, of which there may be two or more ranged in line, so as all can be divided by the conductor. The object of this improvement is good, and the means of accomplishing it are so simple and plain that they require no more to be said in reference to them.

More information may be obtained by letter addressed to Mr. Parkhurst.

Polishing Veneers.

Application for a patent has been made by Edwin Allen, of South Windham, Conn., for an improved machine for polishing veneers. This machine is very compact and simple. The improvement consists in the employment of a smoothing endless belt and an elastic pressure cylinder combined together in a peculiar manner, as an improvement over endless belt polishers which have been previously used.

Barrow calculates that there are in England and Scotland, 1,800,000 houses, each, on an average, containing 2,000 cubic feet of masonry.

Patent Hen's Nest.

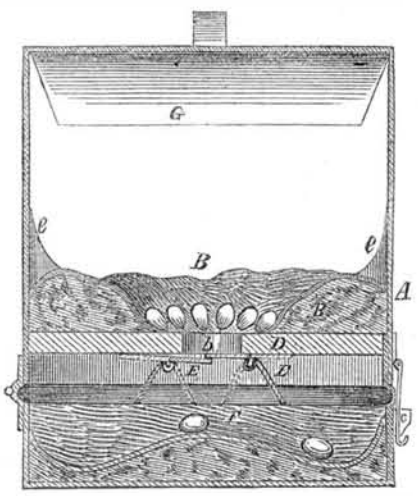
The annexed figure is a vertical section of an artificial Hen's Nest, for which a patent was granted to C. V. Ament, formerly of Dansville, but now of Mount Morris, N. Y., on the 21st of last month (March.)

The nature of the invention consists in constructing the nest with two chambers which communicate with each other through a hole in the center of the nest, and a false bottom or self-adjusting valves under the same —the upper chamber being provided with a suitable nest, and a number of false eggs for the hen to set upon, and the bottom one provided with a soft-cushioned surface for the eggs to fall upon, and of such shape that the real eggs, as they are laid, escape through the valve, and roll gently toward the edge of the bottom, and remain there until it is desired to remove them.

A represents the upper chamber in which the nest, B, and false eggs, C, are placed, as shown. This chamber has a bottom, D, in the center of which, and also in the center of the nest resting on the same, a hole, *b*, is formed for the real eggs to pass through as soon as they are laid. This hole is covered by self-adjusting or balancing valves, E E, which are arranged under the same, and turn on centers; F is the lower chamber, into which the eggs fall as they are laid, this chamber is cushioned or made soft in its inside, its bottom is made highest in its center, and sloping toward its edges, so that the eggs may all have a gradual movement from the center to the edge, and consequently be prevented from falling directly upon one another as they come into the lower chamber. The top and lower chambers are hinged together, and may be secured fast by the catch, *c*, until it is desired to remove the eggs from the lower chamber.

The nest is guarded from injury by a shed or guard, G, which is open at two sides. This shed is placed over, and a short distance above the nest, it being sustained by the vertical side pieces, *e e*.

The operation of this nest is as follows:—The hen is induced to set upon the nest by reason of the false eggs being placed in it. As soon as she lays an egg, it passes through the hole, *b*, and presses upon the valves, E E, and causes them instantly to open and allow the egg to pass into the lower chamber.



The valves adjust themselves automatically; one egg is shown gently rolling from the center, while another is shown as having been deposited already. The real eggs are removed by opening the side of the nest, which is secured close like a box.

This nest prevents the loss of the eggs by the hen hatching; it secures them from weasels, &c., and it saves the trouble of gathering them daily. It is such a nest as can deceive the smartest hen or the smartest weasel, in this our extensive domain which contains the handsome amount of 1,391,480,320 broad acres. It is therefore worthy of the attention of our farmers, for eggs are something of a crop when they sell in this city as at present, at the rate of eight for one shilling. This nest is well adapted for the raising of eggs in-doors during those periods when they are dearest in the market.

More information may be obtained by letter addressed to the patentee at Mount Morris, New York.

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Scientific American.

NEW YORK, APRIL 29, 1854.

The Flax Market.

On another page we have published instructions to the farmers of Ireland for the cultivation of the flax plant for the present year, deeming them of no small importance on many accounts. The series of able articles on flax now publishing in our columns, which are justly attracting a great deal of public attention, will be resumed next week.

The only important manufacture of Ireland is that of linen fabrics, and no wonder the manufacturers are deeply interested in the plentiful supply and the successful cultivation of the plant in that country. But it appears to us that our farmers have a great interest in the matter also. The amount of flax raised in Britain and Ireland has never for the last twenty years been able to supply the demand, consequently a great quantity has always been imported. This has amounted to about £8,000,000 annually—nearly $40,000,000. Of this sum more than $26,000,000 has been paid to Russia every year. The most of this sum went to Russia in gold, for that country never imported from Britain—in manufactured products—so much as it exported to it in flax. Owing to the present war this market for the raw material of flax is now closed, consequently a door for the same product is now open to our farmers. It appears to us, however, that our agriculturists must greatly improve in cultivating flax, to sell well in the foreign market, for the purpose of making fine fabrics. Our flax is generally sowed too thin; the straw is coarse and hard, and does not possess that fineness of fiber requisite for fine manufactures. There are millions of acres in our country, the soil of which has no superior for the cultivation of this plant, and which, we have no doubt, might be profitably applied to such a purpose. Britain must now look to some other country than Russia for a supply of the raw material, and as we pay more for linen fabrics than we return by flax in a raw state, it appears to us that it is a duty incumbent upon our farmers to give more attention to the flax culture than they have done hitherto. There is no mystery whatever about the cultivation; well-drained, plowed, and pulverized loamy soil, the seed thickly sown, and the plants kept free from weeds, are the plain common sense rules for producing flax of a good fiber.

Penalty for Affixing the Word "Patent."

A very interesting patent case was tried before Judge Betts, U. S. Circuit Court, this City, on the 18th inst. A charge of violating the patent law was preferred by G. S. Osborne, against W. Murphy, for selling an article of *blotting paper* cut into strips for use, and stamped "Murphy's Patent Blotter." By the act of Congress (1842) section 5, it is provided that any person who shall paint, print, mold, carve, engrave or stamp upon anything made, used or sold by him for the sole making or selling, of which he hath not obtained letters patent, the name or any imitation of the name of any other person, who hath obtained letters patent, without consent of such patentee, &c.; or who shall affix the words "patent," "letters patent," or "patentee," or any word of like meaning or import, on any unpatented article, for the purpose of deceiving the public, shall be liable for such offence to a penalty of not less than $100 with costs—one half to go to the patent fund, the other half to those who sue for the same, &c. In this case, the suit was brought to recover $1,100 for selling eleven strips marked "Murphy's patent blotter" in January last.—The certificate of the Commissioner of Patents, setting forth that no patent had been granted to the defendant for blotting paper, was given in evidence by the plaintiff, also the evidence of a person who had bought the paper, and likewise that of Mr. Murphy's bookkeeper, to its being sold for two years past. The only defence made was, that the paper used was known in the trade as "patent blotting paper" and had been since 1848.

The main points of the charge of the Judge were, that the plaintiff having reasonably shown that the article sold with the word patent on it, was unpatented, the burden of proof was thrown upon the defendant. Each impression is a complete offence, liable to the penalty of $100, but the person who buys such an article with intent to bring a suit cannot recover, his act being against good morals, and when no evidence was given of the exact number of offences, the jury were bound to assume the smallest number. The jury upon this charge brought in a verdict for the plaintiff of $100. If there are any persons throughout the wide extent of our country, who are now in the practice of putting the word *patent* on an unpatented article, for the purpose of deceiving the public, let them look out for the United States Marshall; he will soon be on their track in the exercise of his lawful duty.

The Crystal Palace Re-Organized.

INTERESTING TO EXHIBITORS—In the last number of the "Scientific American" we stated that the Crystal Palace Association had been re-organized, and that it was to be managed after this by a new board of managers with P. T. Barnum for President. A new code of regulations have been adopted for popularizing the Exhibition. The amplest facilities are to be extended to exhibitors, and they will be allowed to withdraw any article they may wish to dispose of, and to direct visitors where duplicates may be obtained. They will also have the privilege of removing their articles at any time by giving one week's notice.

MACHINERY—The circular which has been issued by the President says:

"The machinery department will be much fuller and more effective than hitherto. There will be operating specimens of nearly every great invention, and in some instances the entire process of manufacturing various fabrics will be exhibited.

Steam power and space will be gratuitously furnished for the most interesting processes in art and industry, and as inventors and exhibitors will be permitted, under certain judicious regulations, to run the machinery for their own benefit, this branch of the Exhibition is expected to become especially interesting."

Great preparations are now being made for the re-opening of the Crystal Palace on the 4th of next month. Two hundred dollars have been offered for the best two odes to be sung on the occasion, and the price of admission on that day will be only 25 cents. Judging from the energy and tack displayed by the new President and Directors, the Exhibition bids fair to be placed on an entirely new and improved foundation.

The Ether Bill.

On the 19th inst., the U. S. Senate passed a bill granting $100,000 to recompense the discoverer of *anasthesia*, as it is called by some, but more commonly known by the term *etherization*, or the rendering of persons insensible to pain during surgical operations, by inhaling ether or chloroform. The bill provides that the $100,000 shall be held by the Secretary of the Treasury until the fact as to who is the real discoverer is decided by a suit in equity. A great number of names have been presented, as the authors of this discovery, among which are Drs. Jackson and Morton of Mass., Wells, of Conn., Guthrie and Collyer of N.Y., and Long, of Ga. The mere fact of rendering persons insensible to pain, during surgical operations, is not new; the thing is old, and if the reward of $100,000 is to be based upon this fact, then it certainly will remain for a long time in the Treasury.

The House of Representatives, on the 21st inst., voted to lay this bill on the table, and in doing so acted wisely. The Bill, in our view, exhibits very little Senatorial wisdom. Let those who own patents for the ether, try the case at law and enforce their just claims—if they have any—in a proper manner.

New York Markets.

We do not mean by this caption to speak of the quantity, quality, or variety of the eatables sold in the markets of our city; these for a population of half a million of as well-fed men and women as there are in the world, must be both imposing in quantity and curious in variety. But let us say, that for a city possessing the wealth of New York, its teeming population, and favorable situation for fish, flesh, fruit, and fowl, the buildings which are called markets are a disgrace to christendom. The largest market in our city more resembles a row of Irish shanties surrounded with hog and dog pens, than a mart for supplying our people with beef and butter, oysters and eggs. Some of the smallest cities in our country far surpass New York for markets, and those of the city of Philadelphia ought to shame every Knickerbocker in our city to make an effort in favor of building new, capacious, and handsome market edifices.

Priority of Invention.

By a letter from a correspondent on another page on the recent decision of Judge Sprague, of Boston, on the sewing machine case, and from various other letters which we have received from time to time, we judge, that for all we have written on the subject, there are many who are ignorant of what really constitutes priority of invention, in the eye of the law. Priority of invention consists in first producing a useful improvement on a machine, or process, or producing a new manufacture, and taking measures to give the same to the public, as a free gift at once, or at the end of fourteen years. A man may invent a most ingenious and useful machine, he may expend thousands of dollars and years of toil in bringing it to perfection, and yet unless he promptly takes measures to secure it by patent, he is liable to lose all that he expended on it, and its use beside, through some other inventor who may come after him. Energy in bringing an invention rapidly to perfection, and promptness in securing it by patent, are the only rules of safety for inventors. Procrastination in completing and securing useful inventions has made many inventors mourn all their lifetime afterwards. We know one inventor who made a most important improvement on a certain kind of machinery, and he had a complete working machine constructed and put up—all kept secret by the advice of well-meaning friends, and even against the fears of his own heart—who now cannot use his own machine. A subsequent inventor secured a patent for a like machine, and from it is now making an independent fortune, while the first inventor, who might have become wealthy, is still a poor hard-working man. The law cannot recognize any property in secret inventions, however meritorious and useful in themselves; and this is not unjust, as it provides for securing every useful improvement, small though it may be. Even if a machine is not perfected according to the mind and desire of an inventor—if after making only one useful step in advance, he desires to make others of a more important nature, to render the machine more useful, and which may require a long time to perfect—the law provides for securing that which he has already invented, and leaves room for adding on his new improvements afterwards. The law is full and complete in this respect, and no one can justly find fault with it. Those inventors therefore who do not promptly take advantage of its provisions, but allow others to do so to their injury, have no body to blame but themselves. We advise all inventors to consider and reflect upon these things.

The Great Storm.

On the 15th, 16th, and 17th inst., our eastern sea coasts were visited with a severe snow storm, accompanied with terrific gales of wind, and the sad news has been coming to us day after day since, of noble vessels dashed to pieces on our dangerous coasts. One ship, the Powhattan was wrecked on Absecom Beach, N. J., and of her 250 passengers not a soul was saved. It is seldom that we have such snow storms with north-east winds at this late period of the year; heavy April rains are common, but not snows. From the great fields of ice which are being met with so far down in the Atlantic, it appears to us that the spring has been unusually early in the Arctic regions, and it is possible that this will be very favorable for Captain McClure, to come out eastward and complete his voyage round the northern part of our globe. We can account for the great quantity of snow which has fallen on our eastern shores during the present spring by the presence of fields of ice in the Atlantic cooling the vapors which are lifted by evaporation from the gulf stream, and converting them into snows, which are carried to our shores by the usually prevailing easterly winds.

Scientific Poisoning.

It is well known to almost every person in our land, that one of the most important poisoning cases ever tried in our country, was that of John Hendrickson, Jr., in the Court of Oyer and Terminer, at Albany, in June and July, 1853, for the murder of his wife Maria. It was charged that he poisoned his wife with aconitine, and from the testimony of Dr. Swinburne, who made the *post mortem* examination, and Dr. Salisbury—State Chemist—both of Albany, the scientific evidence was principally derived, which went to convict the prisioner. He was condemned to be executed on the 26th of last August, but an appeal being taken to procure a new trial, (which was at length refused), his time of execution was put off, but has been at last fixed for Friday next week, we believe. The whole testimony of the trial having been published, a copy of it fell into the hands of Prof. Wells, of Boston, who being deeply impressed with the utter want of soundness in the scientific testimony on which the prisioner was condemned, has submitted the same to a number of the first Chemists in our country, who have all endorsed his opinion. All this has been free and voluntary on the part of Prof. Wells—he had not the least acquaintance with, nor personal interest in the prisioner, but has been at great trouble and expense in endeavoring to avert the execution, because he believes the prisoner has been convicted upon wrong testimony. A petition signed by such eminent chemists as the following has been presented to Governor Seymour. Dr. Hayes, State Assayer, Dr. C. T. Jackson, Dr. Bacon, Chemist of the Massachusetts General Hospital, and Prof. D. A. Wells, all of Massachusetts. Professors Silliman, Sen. and Jr., and Professors Dana and Porter, of Yale, College. Dr. Torrey, of Medical College, Prof. Ellet, Drs. Chilton and E. N. Kent, of New York City. Dr. Gale and Dr. Schaffer, of Patent Office, Washington, and J. Lawrence Smith, Professor of Chemistry in Louisville Medical College.

Protection of Bank Notes.

We noticed on page 242, a patent lately granted in England to Thomas Moss, of London, for protecting bank notes, &c., against the Anastatic process of printing. Our attention has since been called to a patent granted at home to Joseph Dixon & Francis Peabody, of Salem, Mass., April 20th, 1832, for the same purpose; and we find that the English patent now granted is a copy of this invention—twenty-two years old, which has been used in this country ever since. Mr. Dixon was the original discoverer of the art of re-producing lithographic impressions from *old* prints, called anastatic printing, and foreseeing the evil which would follow its general knowledge, invented the plan and took out letters patent to prevent the use of that discovery, in the counterfeiting of bank and other business paper, and it has been of great service to the banks in this country. The art of anastatic printing itself, as well as the protection against it, were invented by Joseph Dixon, then of Salem, Mass., but now residing in Jersey City. "Honor to whom honor is due,"—they are both American inventions.

Machinery for Sale.

Persons desiring to purchase cordage machinery of any kind will have an excellent opportunity of doing so on the 15th of May, as will be perceived by reference to the auction notice of Jona Pearce, in our advertising columns.

Mr. Pearce is about to withdraw from the business and wishes to sell not only his machinery but also the manufactory located in the pleasant city of Louisville, Ky.

New York State Fair.

The next Fair of the State Agricultural Society will be held on Hamilton Square, in this City, on the 3rd, 4th, 5th, and 6th days of next October.

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Water Wheels---Effect of Turbine---Article 3.

EXAMPLE.—A turbine water-wheel, twelve feet in circumference, with inlet and outlet each equal to one square foot sectional area, and guides inclined to the plane of rotation 10°, while working under an eight-foot head, makes 80 revolutions, and discharges 960 cubic feet of water per minute. Required the power, effect, and ratio of effect to power.

Here $960 \times 62{\cdot}5 = 60{,}000$ lbs of water descending 8 feet, and $60{,}000 \div 33{,}000 = 14{\cdot}545$ h. p., the power.

Then $12 \times 80 \div 60 = 16$, the velocity of the wheel per second.

And as the inlet and outlet are equal, $960 \div 60 = 16$, the velocity of the inlet and outlet water.

The water discharged per second will be $960 \times 62{\cdot}5 \div 60 = 1000$ lb. And the cosine of $10° = {\cdot}97$.

Wherefore $16 + 16 - 16 = 16$, and $16 \times 16 \times 1000 \times {\cdot}97 \div 32 = 7760$; which give $7760 \div 550 = 14{\cdot}05$ h. p., the effect.

And $14{\cdot}05 \div 14{\cdot}54 = {\cdot}97$, the ratio of effect to power.

In the above example the water is supposed to enter and leave the wheel without friction, and with a velocity due the head; but in practice this will not be the case. Suppose the velocity to be retarded one-eighth by friction, and that the wheel makes 70 revolutions per minute and discharges 840 cubic feet of water.

Thns $840 \times 62{\cdot}5 \times 8 \div 33{,}000 = 12{\cdot}72$ h. p. the power.

And $(14 + 14 - 14) \times 14 \times 875 \times {\cdot}97 \div 32 = 5198{\cdot}6$, or $5198{\cdot}6 \div 550 = 9{\cdot}45$ h. p., the effect.

And $9{\cdot}45 \div 12{\cdot}72 = 742$, ratio of effect to power.

This ratio will rarely be reached in practice, for the adjutages must be well constructed if the velocity is not retarded more than one-eighth; and few wheels are so constructed that the water leaves them at an angle as low as 10° with the plane of rotation. Yet interested experimenters report a much higher ratio. M. Fourneron states that the first wheel that he established realized 88 per cent. of the power. But what renders it necessary to receive his reports with considerable allowance, is, his statement that the second turbine which he established was one-third more effective than an overshot wheel, "which was in good order and had been well constructed." And further, when the wheel was immersed about four feet under water, it not only did the work of the overshot wheel, "but also made the over-shot wheel revolve in the back-water." "This wheel," says he, "though it received no water from above, while the turbine made it turn, yet without load, and whilst receiving all the water it could use, it had difficulty in taking a velocity half as great as that communicated to it by the turbine."

The scientific reader, or practical millwright, does not require to be told that it will take four times the power to double the velocity of a wheel moving through back-water.

A "well constructed" over-shot wheel, "and in good order," will realize an effect of over 80 per cent. of the power. Hence we have the absurd announcement of a turbine producing an effect greater than the power that drives it, —perpetual motion! JAMES. B. CONGER.

Jackson, Tenn.

[As these articles are of no small importance to millwrights and others; and knowing that they will be used hereafter for reference, we desire to have them correct to a jot. Readers will therefore note the following errata:—On page 222, first column for "water at rest," read *matter at rest.* Second column, art. 8, for "express the power," &c., read *express the product*, &c. Page 230, last paragraph, second column, and last paragraph of the article, for "$(V - w \times v)$" read $(V + w \div v)$; and in example in first column, for "$1 \div 632 \times 16 \times 62{\cdot}5 = 500$," read $\frac{16}{32} \times 16 \times 62{\cdot}5 = 500$.

Philadelphia Coal Burning Locomotives.

The "Ledger" says:—"At the manufactory of M. W. Baldwin, on Broad street, eight first class locomotives have been completed since the first of January. One of them, very superior in its finish, named "Consolidation," has been placed on the Germantown Railroad. Its weight is about 40,000 pounds. They have also sent to their destination on the Pennsylvania Road, four mammoth locomotives, each weighing 60,000 pounds, to be used as pushers at the mountain grades. They are constructed to use bituminous coal. Three freight locomotives, weighing 24 tuns each, have also been placed on the road. About 500 men are engaged in the establishment of Mr. Baldwin, and are now at work completing seven more locomotives intended for the Pennsylvania Road. There are more locomotives manufactured by the machinists of Philadelphia than in any other city in the United States."

Recent Foreign Inventions.

ROLLING METAL—Messrs. Roden and Thomas, Eng., patentees. This invention consists in having two separate sets of rolls placed end to end, and by suitable toothed-wheel gearing, made to revolve in opposite directions. On passing the piece of metal through one pair of rolls, it is immediately conveyed by a suitable carriage to the others, and passed in a contrary direction, the operation being repeated until the required section is obtained.

IMPROVEMENTS IN SAFETY-VALVES—Mr. John Timmis, of Stafford, Eng., patentee. Instead of constructing safety-valves as heretofore practiced, he makes a compound valve, by two, four, or more openings or orifices near to each other, such openings or orifices being opened or closed simultaneously by counterbalancing mechanism, weighted equal only to the difference between the pressures upon them. In all cases there is a down and up valve connected together, and acting in concert, a float being attached to the said down valve. The float attached to the down valve being wholly, or in part, supported by the water in the boiler, so long as the water is kept to the proper level, does not act upon the valves, but this float being heavier than the weight required to drag down the valve, whenever by the sinking of the water the float is left suspended to the valve, that valve is drawn down, and the valve-way opened, and the other or up valve acting in concert, being of course opened at the same time.

PREVENTION OF COLLISIONS ON RAILWAYS—Mr. W. Gosling, of Woolwich, Eng., has registered an invention for the prevention of collisions on railways; consisting of a pendulum attached to the under side of the tender, and a series of stops placed on the sleepers, one opposite each telegraph post. These stops act on hinges or joints, and during the ordinary transit of trains lie flush with the permanent way; but should any indications of danger be apparent to a policeman, a station master, or any other official, by running a few yards he can raise a stop, which, coming in contact with the pendulum of the first locomotive, closes a valve, which shuts off the steam, and rings a bell, to call the attention of the driver to the fact.—Should an engine make its escape without a driver, as has sometimes occurred, communication by telegraph would be made to the next station, and a like operation would bring it to a stand still without danger.

Plenty of Good Radishes for a Shilling.

The following from the "American Agriculturist," is good advice to every man who owns a spare patch of garden ground 6×6 feet:

"We have had an abundance of radishes at all seasons, without devoting a foot of ground to their special cultivation. Our plan has been simply this. As soon as our garden has been plowed and spaded, we have sown over it a small quantity of radish seed, broadcast. The subsequent working and planting of the soil buries these seeds, and as they come up, we destroy them as we would weeds where there is not room for them to grow. But there is always some space between rows or hills of other vegetables, where several plants may be allowed to remain till large enough to pull up for the table. Wherever there is any spare room, we scatter a few seeds when hoeing over the ground to kill weeds. This practice we follow up all through the summer, and a single shilling's worth of seed, thus sown in small quantities, every time we have gone into the garden to work, has furnished an abundance of young radishes at all times. When early peas come to maturity, we have young beets or radishes growing up on the ground occupied by them, from seeds which were sown during the last hoeing they received.

It is well known that on some soils radishes will not grow well, but by our plan of scattering them in every part of the garden, we have always hit upon some spots just suited to produce the nicest roots. Where they happen to be in the way of other vegetables, or where they produce tough, strong bulbs, we cut them down with the hoe and cover them with earth, and they aid to enrich the ground. Thus used, a comparatively small amount of seed will yield a more satisfactory and economical supply, than if a special plot were devoted to their cultivation."

Detection of Poppy or Nut-Oil in Olive-oil.

The following is from the "Pharmaceutical Journal," by E. Marchand, and is useful information of a kind very much required in this city and country. We honestly believe, that for one quart of pure olive sold, there are one hundred that is adulterated with some other oil:—

In consequence of the frequent adulteration of olive-oil, the author had occasion to examine the various methods of detecting it, and has found that the use of sulphuric acid gave satisfactory results.

He describes the process thus:—"When 4 drops of olive, poppy, or nut-oil are placed separately upon a slab of porcelain, and 2 drops of pure concentrated sulphuric acid added, and mixed with the oils by inclining the slab to one side and the other, the following phenomena are observed:—

Olive-oil acquires, at the points of contact with the acid, a yellow color passing into orange; the liquid portion surrounding the magma rapidly becomes dirty gray, and then brownish-black, while the yellow color first produced by the acid gradually passes into bright chesnut-brown. There is never any appearance of blue or lilac tints.

Poppy-oil acquires, immediately at the points of contact with the acid, a fine lemon-yellow color, which becomes rapidly darker at some parts. The liquid portion in contact with the colored portions never acquires the dirty gray color characteristic of olive-oil. After the reaction has continued for ten or fifteen minutes, there is observed, at several points of the liquid portion which immediately borders upon the colored part, a rose color, passing rapidly into bright lilac, and gradually increasing in intensity. After half or three-quarters of an hour, the lilac color passes into a violet-blue, while the original yellow gradually becomes dull brown.

Nut-oil behaves almost exactly the same as olive-oil, except that the yellow substance is more abundant, more rapidly formed, and becomes brown more rapidly, so that within less than ten minutes it acquires a chesnut color. Sulphuric acid is far more easily miscible with this oil than with olive or poppy-oil. The border, which is characteristic of olive-oil, is produced with nut-oil as well; but in this case, instead of gradually becoming black, it passes rapidly into olive-green. This oil never produces a tint of lilac.

Mixtures of Olive and Poppy-oils may be tested by means of the above re-actions. After a certain time, the colors characteristic of poppy-oil, pink, lilac, violet, blue, present themselves successively, with an intensity proportionate to the quantity of poppy-oil present.—Marchand states, that with practice, one-tenth poppy-oil in olive-oil may be detected with certainty by this method.

Mixtures of Olive- and Nut-oils.—When the nut-oil amounts to one-fourth of the whole, sulphuric acid produces a bright orange-yellow color, with a gray border, the outermost parts of which pass into olive-green. A mixture of equal parts of both oils gives an orange-yellow color, with a very distinct gray border, which soon becomes greenish and brown at the outer edge. When the mixture contains three-fourths nut-oil, a reddish-yellow color is produced, surrounded by an olive-green border, paler than that produced with pure nut-oil.

Mixtures of Poppy and Nut-oils acquire with sulphuric acid a yellow color, and at the borders a grayish tint, gradually diffusing itself over the liquid part. When the mixture contains one-fourth nut-oil, an intense lilac is subsequently produced, while the yellow color passes into chesnut-brown. When the mixture contains three-fourths nut-oil, an orange-yellow is produced, with gray borders, passing at certain points into olive-green. Subsequently the yellow becomes bright chesnut-brown.

Bronze.

ANTIQUE BRONZE.—The following composition is said to produce the effect rapidly. 1 pt. salammoniac, 3 pts. powdered argal, and 3 pts. common salt, are dissolved in 12 pts. hot water, and 8 pts. of a solution of nitrate of copper added. (The strength of this solution is not given.—Elsner.) Newly made articles of bronze are coated several times with the above solution. A large proportion of common salt gives a yellowish, and less gives a more bluish tint.

C. Hoffmann produces a beautiful chrome-green brown, by first touching (not brushing) the surface of the bronze with a very dilute solution of nitrate of copper, containing a little common salt, brushing it off, then touching it with a solution of 1 pt. binoxalate of pottassa, $4\frac{1}{2}$ pts. salammoniac, and $94\frac{3}{4}$ pts. vinegar, and again brushing it off. This operation is repeated several times. In the course of a week the article has a greenish-brown hue, with a bluish-green one in the depressions, and withstands the weather.

Elsner proposed a method, some years since, which produced an antique, almost identical with that produced naturally, on bronzes. The bronze article, with a clean surface, was dipped into dilute vinegar, and exposed for several weeks to a moist atmosphere of carbonic acid. The operation is economical, and easily executed.

BRONZING AND BRASSING.—Brunnel, Bisson, and Gaugain, have given a new process for brassing articles of iron, steel, lead, zinc, and their alloys with each other and with bismuth and antimony, by means of the following bath: 500 pts. carbonate of pottassa, 20 pts. chloride of copper, 40 pts. sulphate of zinc, 250 pts. nitrate of ammonia. For bronzing, the zinc-salt is to be replaced by one of tin. The object to be plated, after being brightened by scouring, is connected with the negative pole of a Bunsen battery—a brass plate being the positive or decomposing pole. For large articles, the number, and not the size of the pairs must be increased. A coating of varnish is necessary to protect the plated surfaces from oxydation by exposure.

The Largest Steamboat in the World.

A new steamboat named the "Metropolis," was launched on the afternoon of the 20th inst., from the ship-yard of S. Sneden, Green Point, near this City. She is 350 feet in length, 45 feet beam and 15 feet depth of hold. Her floor timbers are of white oak, 20 inches thick; she has deep, double frames, sided 8 inches—making her frames 16 by 20 inches—and 4 inches apart. Besides being heavily timbered, she is diagonally braced from kelson up to top of timbers, with iron braces 5 inches wide, $\frac{3}{4}$ inch thick and 30 feet long, crossing each other transversely, about 3 feet apart. These braces are secured to the frames with iron bolts, riveted to the timbers, and also riveted where they cross between the timbers. She has seven kelsons, made of white-oak timber, 14 inches wide and three and a half feet high. The bed timbers of her engine are of white-oak, 4 or 5 feet wide and 6 feet high. Over 50 tuns of the best Ulster iron are used in her bracing.

This steamer is intended for the Fall River route, and will run in connection with the "Bay State" and "Empire State." Her engine, which is to be put in by the Novelty Iron Works, is of nearly double the power of any steam engine now in use. The cylinder is 105 inches diameter by 12 feet stroke.

A Cold Spring.

It is mentioned as a remarkable fact by the "Middletown Sentinel," that the Connecticut river, after navigation had been opened and vessels had passed both ways, should be closed over again with ice on the 29th of March within fifteen miles of the mouth of the river, so that steamboats could not pass.

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TO CORRESPONDENTS.

E H.W., of Mass.—We have never seen an instrument to indicate the exact point from which sound proceeds. The Boehm flute is used, we believe, in some of the orchestras.

J. M. H., of Miss.—Plaster busts are coated with a weak parchment size, which is suffered to dry, then a second coat is put on and suffered nearly to dry, when bronze powder is applied with a fine duster, and suffered to dry completely. After this it may be gently rubbed down. If the size gets totally dry, the bronze powder may be applied by simply breathing, on the figure to dampen the size.

G. H., of Fla.—Your plan is a very good one.

A. H. F., of Pa.—It is our opinion that if some dissolved alum were mixed with the water of your tank and the sediment allowed to settle, and the clear only run off for the engines, that it would tend materially to lessen the foaming. The water from the wood-shed should be used by itself and not run into the well. One pound of alum should do for 1000 gallons of water.

A. B., of R. I.—We believe your plan of launching the life-boat is patentable.

I. H. D., of Boston.—The fact is we have received more letters about the alteration of Bank Bills than we can find time to read. Your bill will be taken care of.

T. S., of Ga.—The reason why the paste soon works off iron rollers, is owing to the expansion and contraction of the metal. The paste which you use is as good as any other that we know of; if you add a little copal varnish it may be improved.

J. H. G., of N. J.—The size of a steam engine required for a saw mill, depends on the work which it has to do. Engines from ten up to one hundred and fifty horse power are employed.

P. O. G., of N. J.—We believe that the silk will make the best Bolts, but not the most enduring.

H. M., of Ohio—Water or hydraulic lime can be used to advantage for under-ground work; convey your water through a good pipe. You state that you have a fall of seven feet, and do not mention whether or not it is to be raised above that hight: we infer it is not; if it is the hydraulic ram is the only apparatus used for such a purpose.

R. H. S., of Pa.—We cannot now give you the desired information about Howe's Bridge, excepting that the arch was applied to it.

J. B. C., of Tenn.—You will see that the publication of your last letter has been rendered unnecessary.

J. R. S., of S. C.—For outside work, we are informed that white lead endures the longest, and is the best for such painting as you desire to apply it.

F. J. M., of Mass.—We could not give you advice with respect to the books you have named, as they have not come under our observation. A steam box will not be likely to burst from the ice made by the condensation of one box full of steam; but ice will burst the box if filled with it.

W. H. G., of Ill.—Your plan can work well; it is a visual railroad telegraph for the engineers and conductors. A plan for ringing a bell at the stations, by an approaching train closing an electric circuit, has been invented, but yours is for a different object, and we believe it is patentable.

E. M., of N. J.—Your theory of the inequalities of the earths surface is the same as that which has been very generally adopted by all those who believe in the nebular theory It is the very same, as that taught in public lectures here, and seems plausible.

E. A. H., of Ill.—The lead for pencils is molded into shape by mixing with it a small quantity of ivory black in some adhesive substance, like copal varnish, for the hardest pencils.

W. W. G., of Ohio.—Yours has just come to hand and will meet with attention.

J. J. B., of Tenn.—You will have seen that the same plan as yours for preventing the alteration of bills had been proposed to us before.

G. C. C., of Ohio.—We have never seen a copy of the work which you mention. The most likely place to procure it is at W. McGowan's book store in this city.

R. J. W., of Ohio.—Your invention is a very good one and we have no doubt of securing a patent, for two claims, at least.

D. W. S. Rawson, of Freeport, Ill., wishes to procure a set of steel letters for cutting stencils on metallic plates.

C. M. S., of Mass.—Your steam engine is not new; you can see a similar one illustrated in volume 6, Scientific American.

W. S., of Me.—If you could give us a sketch, however rude, and a more full and clear description of the application of the improvement to the rigging, we could make out papers for a caveat, but could not do so with the scanty information we have received.

O., of D. C.—Yours has been received.

W. H., of Ga.—We will next week furnish you with the plan of preserving the fruit by carbonic acid gas.

J. S., of Tenn,—We really cannot read your communication; it has been written in too great a hurry.

J. P., of Tenn.—The effect produced by a machine is not patentable. The means by which the effect is produced is the subject of the claim. The application of a power to a purpose not before known or used, is not a patentable subject.

☞ Unsigned Communications are rejected unless there is abundant reason to believe that the writer is ignorant of his duty in this respect. It is not at all likely we shall make an unwarrantable use of them.

Money received on account of Patent Office business for the week ending Saturday, April 22:—

W. K., of O., $25; A. N. N., of Ind., $25; J. C. D., of N. J., $25; J. H., of N. Y., $50; H. B. P., of N. Y., $25; W. E. D., of N. J., $30; J. M. T., of Mass., $30; J. W. R., of O., $100; T. A., of Mass., $25; S. H. S., of Texas, $102,80. L. A. D., of O., $30; C. P. S. W., of N. H., $30; C. A., of N. J., $30; B. & S. of Ct., $25; R. M., of N. Y., $25; J. & J. F., of Ky., $35; J. McM., of Ky., $16; E. K., of Pa., $30; H. & S. H. P., of Pa., $30; R. J. P., of N. J., $30 A. T., of N. Y., $25; W. S., of N. J., $20; E. A., of Conn., $25; G. H. G., of N. Y., $60.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, April 23:—

A. N. N., of Ind.; W. E. D., of N. J.; E. A., of Ct.; J. C. D., of N. J.; G, W. P., of N. H.; H. B. P., of N. Y.; W. S., of N. J.; R. M., of N. Y.: T. A., of Mass.; J. McM., of Ky.; W. K, of O.; H. E. P., of S. C.; A. T., of N. Y., G. H. G., of N. Y; W. McC., of N. Y.

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☞ All advertisements must be paid for before inserting.

American and Foreign Patent Agency.

IMPORTANT TO INVENTORS.—The undersigned having for several years been extensively engaged in procuring Letters Patent for new mechanical and chemical inventions, offer their services to inventors upon the most reasonable terms. All business entrusted to their charge is strictly confidential. Private consultations are held with inventors at their office from 9 A. M., until 4 P. M. Inventors, however, need not incur the expense of attending in person, as the preliminaries can all be arranged by letter. Models can be sent with safety by express, or any other convenient medium. They should not be over 1 foot square in size, if possible.

Having Agents located in the chief cities of Europe, our facilities for obtaining Foreign Patents are unequalled. This branch of our business receives the especial attention of one of the members of the firm, who is prepared to advise with inventors and manufacturers at all times, relating to Foreign Patents.

MUNN & CO., Scientific American Office,
128 Fulton street, New York.

UNITED STATES PATENT OFFICE.
Washington, April 17. 1854

ON THE PETITION of Simon Fairman, of Stafford, Connecticut, praying for the extension of a patent granted to him on the 18th day of July, 1840, for an improvement in "the expanding and contracting, or universal chuck for lathes," for seven years from the expiration of said patent, which takes place on the 18th day of July, eighteen hundred and fifty-four, (1854)—

It is ordered that the said petition be heard at the Patent Office on Monday, the 25th of June next, at 12 o'clock. M.; and all persons are notified to appear and show cause, if any they have, why said petition ought not be granted.

Persons opposing the extension are required to file in the Patent Office their objections, specially set forth in writing, at least twenty days before the day of hearing; all testimony filed by either party to be used at the said hearing must be taken and transmitted in accordance with the rules of the office, which will be furnished on application.

The testimony in the case will be closed on the 15th of June: depositions, and other papers relied upon as testimony, must be filed in the office on or before the morning of that day; the arguments, if any, within ten days thereafter.

Ordered, also, that this notice be published in the Union, Intelligencer, and Evening Star, Washington, D. C.; Evening Argus, Philadelphia, Pa.; Scientific American, New York; Daily Courier, Buffalo, N. Y., and Post, Boston, Massachusetts once a week for three successive weeks previous to the 25th day of June next, the day of hearing.

S. T. SHUGERT,
Acting Commissioner of Patents.

P. S.—Editors of the above papers will please copy and send their bills to the Patent Office, with a paper containing this notice. 33 3

KRUPP'S BEST CAST STEEL—Suitable for Mint and Plater's Rollers, also of large size (72x18 inches diam) for rolling iron, copper or brass. Pistons of Steam Engines, and Shafts for Steamboats, not exceeding six tuns weight in one piece. Also the celebrated Cast Steel Axles and Tire, made from a solid bar without welding. Agents, THOS. PROSSER & SON,
33tf 28 Platt st, New York.

ENGINEERING—The undersigned is prepared to furnish plans for ever description of machinery, water wheels, turbines, and to consult with parties to make experiments and scientific investigations, and to superintend the construction of works. Agent for Mellier's Patent for making White Paper from Straw.

VICTOR BEAUMONT,
33 10* Consulting Engineer, 74 Broadway, N.Y.

WHITE STRAW PAPER—For Newspapers.—A Mellier, the patentee, having established his process at Nixon & Xeinour's Mills, Manayunk, where the paper for the Philadelphia Ledger has been made daily from straw since the 12th of April, is now ready to sell licenses and make arrangements for establishing the process elsewhere. Apply to A. MELLIER & V. BEAUMONT, 74 Broadway, where specimens of half stuff, stuff and paper may be seen. 33 10*

CUTTING ENGINE.—A very superior engine for Cutting Clock Wheels and Bevelled Gearing. It is made capable of Cutting Wheels and Pinions, from the smallest size to 15 inches diameter. It has also an attachment to use it as a Dividing Engine. The above is probably the best engine in the United States, was made and used by Mr. E. Currier, of Salem, Mass., and is now offered for sale by the administrator to settle his estate, price $200. It can be seen at 33 Tremont street, Boston.
GEO. B. FOSTER. 33 4

TO YOUNG MEN.—Pleasant and Profitable Employment.—Young Men in every neighborhood may obtain healthful, pleasant, and profitable employment, by engaging in the sale of useful nnd popular Books, and canvassing for our valuable Journals. For terms and particulars, address, post-paid, FOWLERS AND WELLS, No. 308 Broadway, New York.

P. S.—All Agents who engage with us will be secured from the possibility of loss, while the profits derived will be very liberal. 33 4

AGRICULTURAL MACHINERY.—PARTNER WANTED—The advertiser wishes to join with one or more business men practically acquainted with the necessary branches, to establish a manufactory of agricultural machinery in the West. It would be necessary that each partner should furnish his proportion of capital. Address A, U. C., Blood's Despatch, Philadelphia, Pa. 32 3*

ARCHITECTURE—TO BUILDERS, IRON FOUNders, Machinists, &c.—Plans, Specifications, Detail, and Working Drawings, prepared for every description of Buildings, and in every style of Architecture, on much improved principles, combining both economy and beauty of proportion and outline. Machinery and Buidings copied and drawn to scale in geometrical, isometrical and perspective views. G. HARDESTY JOHNSON, Office 13 Greenwich st., N. Y. 32 2*

CIRCULAR SAW MILLS—The undersigned are manufacturing, and keep constantly on hand,—"Child's Premium Double and Single Circular Sawing Machines." The best machine in use for sawing lumber from logs of all sizes, and warranted capable of cutting more lumber in a given time than any other mill.

H. WELLS & Co.,
31 8 eow* Florence, Hampshire Co., Mass.

PORTABLE STEAM ENGINES—The subscriber is now prepared to supply excellent Portable Engines, with Boilers, Pumps, Heaters, etc., all complete, and very compact, say 1, 2, 2, 1-2, 3, 4, 6, 8, and 10 horse-power, suitable for printers, carpenters, farmers, planters. &c., they can be used with wood, bituminous, or hard coal; a 2 1-2 horse engine can be seen in store, it occupies a space 5 feet by 3 feet, weighs 1500 lbs., price $240; other sizes in proportion. S. C. HILLS.
25eotf Machinery Agent, 12 Platt st, N. Y.

AT AUCTION—BY S. G. HENRY & CO. Large and Peremptory Sale of Bagging, Bale Rope, Cordage and Oakum Machinery On Monday Morning, May 15th, at 10 o'clock, we will sell on the premises—the Brick, Bagging and Rope Factory; corner Broadway and Eighteenth streets, with a fire proof Hemp House and all the Machinery contained therein, in lots to suit purchasers, consisting in part of 1 Arnold's Patent Heckling Machine, 3 Lappers with cylinder feed,* 6 Drawing Frames,* 20 Day's Patent Spinning Machines, new fliers and chains,* 1 Manilla Picker,* 1 Tow Picker, 5 Spinning Frames, 12 fliers each, 1 Card and Tar Box for making Machine Spun Oakum, 1 Oakum Press, 2 new four feet Tow Cards, 3 large Jacks for hauling and laying up to largest size shrouds used on vessels, 2 Ratlin Jacks, 1 Compound Geared Press Rope Machine, 1 Tarring Machine for 48 single threads, 1 Reeling Machine, 1 Coiler and Reels, 1 Spun Yarn Reel, 1 Gauge Plate and Tubes, 1 1-2 to 9 inches 5,000 Bobbins, 1,600 feet Railroad Iron, Top Sled. Tops, driving shafting, drums, tightners, &c., in fact everything connected with a well appointed Rope Walk.

TERMS—For Real Estate—One-third cash; balance in 1 and 2 years, with interest, and a lien retained to secure the deferred payments. Terms—For Machinery and Movable Property—Four months' credit, joint note payable in bank. * Built by and the same as used by Sewall, Day & Co., Boston, to whom I refer. Parties at a distance can rely on all the Machinery and Buildings being offered and sold without reserve. For further information address. JONA PEARCE.
Louisville, Ky. 32 2*

SELF INSTRUCTING DRAWING-BOOK—Now ready, the Practical Draughtsman. Part IX. To be completed in 13 Parts, at 37 1-2 cents each. "A work of lasting interest and value. To the Mechanic the engineer, and the artist it must be very valuable, and neither can well complete his mechanical or professional education without it; while he who is master of its invaluable text possesses an immeasurable superiority over all his trade or profession who have not made themselves acquainted with its contents." [N. Y. Express. Circulars will be furnished gratuitously to Agents giving it their direct attention. Published by STRINGER & TOWNSEND, No. 222 Broadway. 32 2

HARRISON'S PATENT MILLS—Received the highest premium at the World's Fair; 250 have been sold in two years. The stones are French burr; the frames and hoppers cast-iron, the spindles solid cast steel. They will work better for flouring, and on all kinds of grain and dry substances, and keep in repair longer than any other mill in the world. I have completed my new steam mills for manufacturing and running them, and am now prepared to supply orders for all the sizes, from 20 inches to 4 feet diameter, including also a superior farm and Plantation Mills at a fair price. Agents wanted to sell them in all parts of the country. Descriptive circulars, with cuts, mailed to all post-paid applications. EDWARD HARRISON,
Sole manufacturer and proprietor of the patent,
New Haven, Conn. 30 7*

1854—MICHIGAN CENTRAL R R. LINE,—D. W. WHITING, Freight Agent for Railroad and the enormous new steamers "Plymouth Rock," "Western World," and "May Flower,"—and also General Forwarder, will forward freight of any kind, by any mode of conveyance, to any destination, with dispatch and at the lowest rates; has trucks and machinery and (having been a practical machinist has all the skill necessary) for the safe and expeditious handling of any machine or heavy article, such as Locomotives, Steam Engines and Boilers, Engine Lathes, Church Bells, Safes, &c. Mark packages care "D. W. Whiting, Buffalo;" goods thus consigned take precedence with the above boats in all cases. 32tf

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$100 REWARD—To the Manufacturers of Bank Note Paper. The Executive Committee of the Association of Banks for the Suppression of Counterfeiting, hereby offer a reward of One Hundred Dollars for the best specimen, in the opinion of the Committee, of Bank Note Paper, of not less than five hundred sheets, which may be submitted to them on or before the 1st day of January next. All paper submitted, except that selected by the Committee, to be returned to the persons submitting the same.

J. M. GORDON, Secretary.
Boston, Mass., March 31, 1854. 31 15*

KETCHUM'S IMPROVED MOWING MAchine with entire change of Gear. The only successful grass cutter now known; warranted capable of cutting and spreading from ten to fifteen acres of any kind of grass, per day, in as good a manner as is done with a scythe. Orders filled at our establishment in Buffalo, N.Y., or at J. MAYHER & CO.'S, and R.L. ALLEN'S, Water street, N. Y. HOWARD & CO.,
31 8 Proprietors.

SEWING MACHINE—The Office and Warerooms of the Wheeler & Wilson Manufacturing Company, for the sale of their Sewing Machines, is removed to No. 343 Broadway, where the public are invited to call and examine them in practical operation. 31 13*

FOR SALE—A six horse Steam Engine and Boiler, with all the fixtures; has been used about two years, but is in good working order; price $375. Address WM. W. WOODRUFF, New Britain, Conn. 31 3*

MODELS—Of all kinds made and warranted to answer the requisitions of the Patent Office. Post-paid communications strictly confidential. Address J. G. ARNOLD, Worcester, Mass. 31 10*

ROBERTSON'S—Recently patented Keyed Stop Finger Board, for the Violin, can be examined and attached to old or new violins at the manufactory, 181 Broadway, N. Y. 31 4*

FORBUSH'S IMPROVED MOWING AND REAPING MACHINE—Manufactured and sold by the "American Mowing and Reaping Machine Co.," Buffalo, N. Y., warranted as good as any other machine in the country for grain or grass, and as a combined machine superior to any in the world. Orders for the machine for the harvest of 1854, should be sent on early.
30 4* C. W. SMITH, Sec'y.

PORTABLE FORGES AND BELLOWS—(Queen's patent). The best forge in market for Blacksmiths work, Boiler Makers, Mining. Quarrying, Shipping, plantations, Contractors on Railroads and Public Works, Coppersmiths, Gas Fitters, &c., Also an improved Portable Melting Furnace for Jewellers, Dentists, Chemists, &c., both of which are constructed with sliding doors to protect the fire from wind and rain when used outdoors, and for perfect safety and free escape of smoke when used indoors. They are compact for Shipping. Circulars with particlars and prices will be forwarded upon application. Cast iron Columns, for building constantly on hand. Jobbing, Piano, and all kind of work promply executed. FREDERICK P. FLAGLER,
29 10* Sole Manufacturer, 210 Water street, N. Y.

MINING MACHINERY—Of most approved construction, furnished by FRED'K COOK & CO, Hudson Machine Works, Hudson, N. Y. 15 6m

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STAVE MACHINERY.—The "Mowry Stave Cutter and Jointer Combined," which received the highest award at the Crystal Palace, is the only machine that ever undertook to joint a stave properly at the same time that it was cut and dressed, without rehandling. One man tends the machine and turns out from a solid block of wood ninety staves a minute, ready for the truss hoop. It is not only the best in use, but for slack work we challenge the world. For machines and rights in New York, apply to CHARLES MOWRY, Auburn. For machines and rights in other parts of the United States, apply to GWYNNES & SHEFFIELD, Urbana, Ohio. 29 tf

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PIG IRON—The subscriber has always on hand a stock of the best brands of American and Scotch Pig Iron, for sale at the lowest market price. G. O. ROBERTSON, 135 Water st, cor. Pine, N. Y. 13 14eow

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NEW HAVEN MANUFACTURING COMPANY—New Haven, Conn., (successors to Scranton & Parshley) have on hand Power Planers, to plane from 3 to 12 feet; slide lathes from 6 to 18 feet long; 3 sizes of hand lathes, with and without shears; and counter shafts: universal chucks; drill presses, index plates, bolt cutters, and slide rests. The N. H. M. Company also have the right for Harrison's patent Flour and Grist Mill for the term of five years, and are prepared to furnish these superior mills at short notice. They are unequalled by any other mill, and will grind from 20 to 30 bushels per hour, and will run without heating, being self-cooling. They weigh about 1400 lbs., are of the best French burr stone, 30 inches in diameter; are snugly packed in a cast-iron frame, price of mill $200, packing $5. For cuts, prices, and further particulars apply post-paid, as above, or to S. C. HILLS, agent N. H. M. Co., 12 Platt st., N. Y. 22tf

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PORTABLE STEAM ENGINES—GEORGE VAIL & CO., Speedwell Iron Works, Morristown, N. J., LOGAN VAIL & CO., No. 9 Gold st, N. Y., are prepared to furnish Portable Steam Engines from four to eight horse power, with locomotive boilers. These engines are recommended for their simplicity, durability, and economy, being made from the best materials and designed for practical use. They are placed on wheels convenient to be moved from place to place, and are shipped in working order: for plantation use, machinists, or others wanting small power, these engines will be found superior to any others in use. A Silver Medal was awarded at the late Fair of the American Institute, and a premium in cash of $100 at the Maryland State Fair, held at Baltimore in October last. Persons writing us by mail will be particular to give their address in full.
21 38*

JOHN PARSHLEY, No. 5 and 7 Howard st., New Haven, Ct., manufacturer of Machinists' Tools, and Steam Engines, has now finishing off 25 Engine Lathes, 6 feet shears, 4 feet between centers, 15 inches swing, and weighs about 1100 lbs. These Lathes have back and screw gear, jib rest, with screw feed, and the rest is so arranged that the tool can be adjusted to any point the work may require, without unfastening the tool, hence they possess all the good qualities of the jib and the weight lathe; they are of the best workmanship. Price of Lathe with count shaft and pulleys, $155 cash. Cuts, with full description of the lathe, can be had by addressing as above, post-paid. Also four 30 horse power vertical Steam Engines with two cylinders. Price of engine with pump and heater, $800 cash. For particulars address as above. 19tf

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SCREW CUTTING MACHINES. with P. W. Gates' Patent Dies—The subscribers keep constantly on hand three sizes of the above-named machines, to wit—No. 1 machine, 10 sets dies and taps from one-half to two inches, $350: No. 2, 8 sets dies and taps, one-half to one and a halfinches, $250; No. 3, 6 sets dies and taps, three-eighths to one inch, $150. Cash on delivery at shop. P. W. GATES & CO.
Chicago, Ill. 27 13

HUDSON MACHINE WORKS and Iron Foundry—at Hudson City, N. Y., are prepared to contract for castings for railroads, bridges, buildings, gas pipes and posts, water pipe, cast-iron ornamental floors, cannon, &c. Steam engines and boilers, high and low pressure, sugar mills, Cornish lifting and forcing pumps for mines; stamps, mortars, and mining machinery;—also superior hydraulic pumps and presses, and superior machinists' tools made to order. Especial attention given to the making of patent machines. Orders by mail will receive prompt attention. New York Office No. 18 Exchange Place.

FREDERIC COOK & CO.
F. COOK, H. McCLELLAND. 27tf

MACHINERY FOR SALE—The following machines are for sale at the "Scientific American" Office:—Alcott's Concentric Lathe, price $25.
Portable Mortising Machine, $30
Bushnell's Iron Drill, $25
All orders should be addressed (accompanied with the cash) to MUNN & CO., 128 Fulton st., N. Y.

C. B. HUTCHINSON'S PATENT STAVE Cutting Machines—The best in use, and applicable alike to thick and thin staves, for barrels, hogsheads, &c.; also his Head Cutting and Turning, and Stave Jointing and Crozing Machines. This machinery reduces the expense of manufacturing at least fifty per cent. For machines or territorial rights, apply to C. B. HUTCHINSON & CO., Syracuse, N. Y. 27tf

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ENGINEERING.—The undersigned is prepared to furnish specifications, estimates, plans in general or detail of steamships, steamboats, propellers, high and low pressure engines, boilers and machinery of every description. Broker in steam vessels, machinery, boilers, &c. General Agent for Ashcroft's Steam and Vacuum Gauges, Allen & Noyes' Metallic, Self-adjusting Conical Packing, Faber's Water Gauge, Sewell's Salinometers, Dudgeon's Hydraulic Lifting Press, Roebling's Patent Wire Rope for hoisting and steering purposes, etc., etc.

CHARLES W. COPELAND,
20 tf Consulting Engineer, 64 Broadway.

PLANING, TONGUING, AND GROOVING—BEARDSLEE'S PATENT.—Practical operation of these Machines throughout every portion of the United States, in working all kinds of wood, has proved them to be superior to any and all others. The work they produce cannot be equalled by the hand plane. They work from 100 to 200 feet, lineal measure, per minute. One machine has planed over twenty millions of feet during the last two years, another more than twelve millions of feet Spruce flooring in ten months.. Working models can be seen at the Crystal Palace, where further information can be obtained, or of the patentee at Albany, N. Y
27tf GEO. W. BEARDSLEE.

STATIONARY STEAM ENGINES—The subscriber is now prepared to furnish, with or without pumps, boilers, &c., Horizontal Engines on iron bed frames, good strong, substantial, plain finished engines that will do good service, say from 4 horse, $215, to 30 horse, $1,037; they have Judson's patent valves, and will be warranted to work well. S. C. HILLS,
31tf 12 Platt st, New York.

A. B. ELY, Counsellor at Law, 52 Washington street, Boston, will give particular attention to Patent Cases. Refers to Messrs Munn & Co., Scientific American.
16 1y*

WROUGHT IRON DIRECT FROM THE Ore—The owners of James Renton's Patent are now prepared to sell rights for this most valuable invention. Apply to JAMES RENTON, Cleveland, Ohio, or to A. H. BROWN, 107 Market st., Newark, N. J. 27 10*

BAKER'S IMPROVED BOILER FURNACE—As used at the Crystal Palace: orders received for Stationary, Marine, or Locomotive Furnaces on this plan, and also for the rights for towns, counties, or States: certificates can be shown of furnaces in use for stationary, marine, and locomotive furnaces, with saving from 30 to 50 per cent. in fuel. J. AMORY,
25tf General Agent, 28 State st, Boston, Mass.

McALLISTER & BROTHER.—Opticians and dealers in mathematical and optical instruments, No. 48 Chesnut st., Philadelphia, Pa.—at the old stand established in 1796 by John McAllister, Senr. Mathematical instruments separate and in cases, Tape Measures, Spectacles, Spy Glasses, Microscopes, Thermometers, Salometers, Hydrometers, Magic Lanterns, &c., &c. Our illustrated and priced catalogue are furnished on application, and will be sent by mail free of charge. 10 25*

NORRIS WORKS, Norristown, Pa. The subscribers build and send to any part of the United States, Pumping, Hoisting, Stamping, and Portable Engines, and Mining Machinery of every description.
41 1y.* THOMAS, CORSON & WEST.

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Scientific Museum.

Deep Sea Soundings by American Vessels.

[Concluded from page 256.]

"One of the conclusions," says Lieut. Maury, in his report on this subject to the Secretary of the Navy, "which we seem authorized to draw from the various soundings thus far obtained in the Atlantic, is this, viz., that if there be any part of the ocean, between the banks of Newfoundland and the Equator, more than 4,000 fathoms deep, (24,000 feet) it is probably not great in comparison with the whole. Another feature exhibited as to the shape of the steppes, or plains of the great oceanic basin is worthy of notice. There seems to be, as we travel south from the Grand Banks of Newfoundland, a precipitous ledge, or what sailors call a 'jumping-off place,' right under the Gulf Stream. The Hatteras Shoals are formed by a cold current which runs along the shores of the United States, counter to the Gulf Stream. They are shelving from the North, that is, as you approach from the North, you gradually lessen your water until you reach the shoalest part, and then there is a sudden jump-off into deep water." From Newfoundland to Ireland, the distance between the nearest points is about 1600 miles, and the bottom of the sea between the two places is a *plateau*. The depth of water on the *plateau* is quite regular, gradually increasing from the shores of Newfoundland to the depth of from 1,500 to 2,000 fathoms, as you approach the other side. Specimens brought from the bottom of this submarine plain, by means of the deep sea-sounding apparatus, are composed of minute microscopic shells, without a particle of sand or gravel. These shells suggest the fact that there are no currents at the bottom of the sea whence they came—that the lead found them where they were deposited in their burial-place after they had lived and died on the surface, and by gradually sinking they were lodged on the bottom. Had there been currents at the bottom there would have been swept and abraded, and mingled up with these microscopic remains, the debris of the bottom of the sea, such as ooze, sand, gravel, and other matter. Hence the inference, as none of these foreign substances were found among them, that these depths of the sea are not disturbed either by waves or currents.

The deepest sea soundings yet effected was made on the 30th October last, by H. M. Ship "Herald," in the course of a passage from Rio de Janeiro to the Cape of Good Hope, 36° 49′ S. Lat., and 37° 6′ W. Lon. The sounding line was 1-10th of an inch in diameter, laid in one length, and weighing, when dry, one pound per every hundred fathoms. 15,000 fathoms of this line belonged to the U. S. Ship "Congress," Capt. McKeever, and was manufactured at the request of Lieut. Maury, expressly for the purpose. The plummet weighed 9 pounds, and was 11·5 inches in length, and 1·7 inch in diameter. When 7706 fathoms had run off the reel the sea-bottom was reached. The captain of the "Herald" states that himself and other officers in separate boats, with their own hands drew the plummet up 50 fathoms several times, and after it had renewed its descent it stopped, on each occasion, abruptly, at the original mark to a fathom, and would not take another, turn off the reel. The velocity with which the line rnn out was as follows:—

	h.	m.	s.
The first 1000 fathoms in	0,	27,	15.
1000 to 2000 " "	0,	39,	40.
2000 to 3000 " "	0,	48,	10.
3000 to 4000 " "	1,	13,	39.
4000 to 5000 " "	1,	27,	06.
5000 to 6000 " "	1,	45,	25.
6000 to 7000 " "	1,	49,	15.
7000 to 7706 " "	1,	14,	15.
Total,	9,	24,	45.

The distance through which the plummet descended in the above time, was 7·7 geographical miles of 60 to the degree. The highest summit of the Himalaya, viz. Dhawalagiri, and Kinchinginga, are little more than 28,000 feet, or 4·7 geographical miles above the sea. The sea bottom is therefore proved to have depths greatly exceeding the elevation of the highest pinnacle above the surface.

The strength of the line used in the above instance, tried before sounding, was found to be equal to bear 72 pounds in air. The 7706 fathoms which ran out, weighed when dry 77 lbs., exclusive of the plummet, 9 lbs. Great care was taken in the endeavor to bring the plummet again to the surface to show the nature of the bottom, but whilst carefully reeling in, the line broke at 140 fathoms below the water line, carrying away a self-registering thermometer, which had been bent on at 3000 fathoms.

The greatest depth of sounding obtained previous to the instance above referred to, was by Lieut. Walsh, in the U. S. schooner "Taney," on the 15th of November, 1849, Lat. 31° 59′ north, Lon. 58° 43′ west. A wire used in this case descended to the depth of 5,700 fathoms, (34,200 feet, or more than six statute miles) when it broke at the reel and was lost.

During the summer of 1853, the brig "Dolphin," U. S. N., was engaged in these investigations with great success, sailing from Chesapeake Bay, a line of soundings was first run from that point to the west coast of Scotland, at Rockule. Soundings being made at intervals of about 100 miles. From Rockule a second line was run to the Azores, a little to the north of which a ridge 6,000 feet in hight from the ocean-bed, was discovered, the soil of which was of a chalky character, mixed with fine sand. From the Azores the explorers steered westerly, every where finding bottom at no great depth. The deepest sounding made at any time during this cruise was 3,130 fathoms, in Lat. 41° to 43° North, Lon. 51° to to 56° West. The Dolphin is at the present time employed in continuing these investigations.

Experiments made by Wilkes during the U. S. Exploring Expedition, indicate that light penetrates the ocean to the depth of 80 fathoms (480 feet.) This may be considered also as about the limit of permanent animal and vegetable life. The depth at which objects cease to be visible to the eye is much less. A pot painted white was let down into the water, and the point of invisibility marked; upon taking it out the point of visibility was marked, and the two were found to vary but a fathom or two. In water of 36° Fah., the pot disappeared at 6 fathoms; in water at 76° Fah. at 30 fathoms; in the Gulf Stream at 27 fathoms; just outside of it at 23 fathoms.

"There is something," says Lieut. Maury, "peculiarly attractive and interesting about the mysteries of the sea. There is a longing desire to know more of them.

Man can never see, he can only touch the bottom of the deep sea, and then only with the plummet. Whatever it reveals, or brings up, is to the philosopher a matter of powerful interest, for by such information alone as he may gather from a most careful examination of such matter, the amount of human knowledge concerning nearly all that portion of our planet which is covered by the sea, must depend."

Fine Cotton.

The Montgomery (Ala.) "Journal" states, that Mr. Vanderveer, a planter in that place, has cultivated a kind of cotton for three years, which sells for 4¾ cents more per pound than that of the same class of cotton. The seed came from South America, and it yields 25 per cent more to the acre than the common kinds.

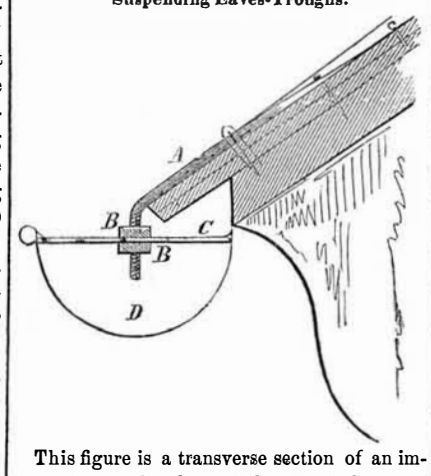
A Dark Day Coming.

On Friday, the 26th of May next, the annular eclipse of the sun will continue about two hours and fifteen minutes, and obscure about eleven-twelfths of the sun. This extraordinary eclipse will be similar to that of 1806.

Geological Survey of Ohio.

The Legislature of Ohio, says the "Cincinnati Columbian," has made provisions for a geological survey of that State. The law provides that the State shall be divided into six districts, and the work be done by one principal geologist and a sufficient number of assistants. A map at least seven feet by six, engravings to illustrate the final report, the topography of every square mile of territory, assays, and so on, are all provided for in the bill, and taxation to the amount of one dollar per square mile—$40,000 per year for the State—to pay the expenses.

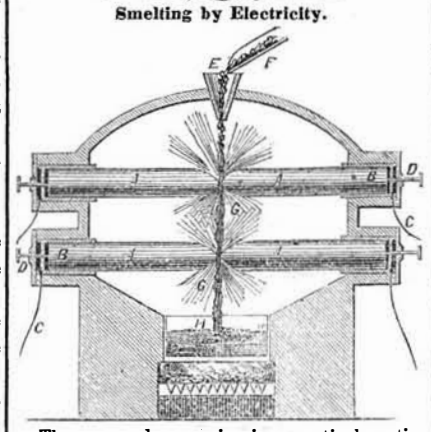
Suspending Eaves-Troughs.



This figure is a transverse section of an improved method of suspending and fastening eaves-troughs, for which a patent was granted to Chauncey D. Woodruff, of Toledo, Ohio, on the 7th of last month (March, 1854). The eaves-trough, D, is made of the usual form, with a cross bar, C, soldered to it, of sufficient strength to keep the trough in shape and sustain its weight. From this cross bar there extends an iron rod, A, with screw and nuts, B B, at its lower end. This rod is bent to conform to the roof of the building, and it is flattened at its upper end and nailed to the roof, as shown. The screw and nuts on this rod allow of the trough being elevated and lowered on the said rod.

The nature of the improvement consists in the mode of suspending and securing eaves-troughs to roofs, so as to allow of their being elevated or depressed at pleasure, as represented. This is what is claimed in the patent.—This improvement is simple and appears to be a good one, for the house and cornices will not be disfigured by straps and rails, as by the common method of suspending an eaves-trough. More information may be obtained by letter addressed to the patentee at Toledo.

Smelting by Electricity.



The annexed engraving is a vertical section of an apparatus invented by M. Pichon, of France, for smelting ores.

A A are electrodes which are made of metal arms, each tapering towards the center, leaving a small space between each pair. These form the center of two galvanic circuits, and they are connected by wires, C, at the metal caps, B B, to the battery. The metallic ore to be smelted is mixed with charcoal or coke, and fed by the spout, F, through the hopper, E, and falls between the electrodes where it is ignited by the strong electric spark, as shown at G G, generating a most intense heat, and from thence in a molten current flows into a receiver furnace, H, which has a fire underneath, where the slag is separated from the molten metal. The electrodes are inclosed in an oven so as to retain all the heat. The inventor proposes to generate enough of electricity for smelting in this manner by a magneto-electric machine, instead of a powerful battery. To do so, it would require a very powerful one, and a steam engine to drive it, and he might gain as much by applying the coals required to generate the steam, direct to smelting the ore, and thus save both the expense of the steam engine, and the magneto electric machine. As the *termini* of the electrodes must soon fuse away, when made of iron, they are pushed forward gradually by the head screws, D D. Platina is the best substance for the cathodes and anodes. This system of smelting ores, although novel, must be far more expensive than the use of fuel applied to produce the fusion by the blast and simple combustion.

Fast Sailing.

The famous ship "Marco Polo," Captain McDonnell, made the passage from Liverpool to Melbourne, in 84½ days, mean time, the shortest passage ever performed by a sailing vessel; but, unfortunately, while in charge of a pilot, inside of the Heads, was run ashore, and at last accounts, remained hard and fast, although two steam-tugs had attempted to tow her afloat Her greatest run was 428 miles in 24 consecutive hours.

LITERARY NOTICES.

Bibliotheca Sacra—This learned and able Review of the New England Congregationalists, for April, contains one of the most profound and interesting articles we ever read, on Historical Geography and Ethnography (a translation from the French.) There are four other able original essays in this number. In noticing the last number of this Review, we stated that Dr. Alexander, of Scotland, (one of the Editors) had been numbered, like Dr. Wardlaw, with the 'clods of the valley." In this we were mistaken; we had seen a notice—we now think in the "Scottish Guardian,"—of the death of a Dr. Alexander, but we are glad to know that it was not the learned Associate Editor of the "Bibliothca Sacra," some of whose sermons we have read and greatly admired, for their devotional spirit, logical precision, and elegant diction. Published by W. F. Draper & Bro., Andover, Mass,

The Practical Draughtsman—Part 9, of this excellent work on mechanical engineering and architecture, is just published by Stringer & Townsend, this city. It is an excellent work in every respect.

Leslie's Ladies' Gazette—This publication occupies a field which has never been attempted in this country before—at least to anything like so creditable an extent. It is devoted exclusively to the ladies—furnishing fashion plates of every description in copious numbers. French and English, as well as American styles of children's dresses, hats, etc., are illustrated in its pages, and rules and instructions for netting, weaving purses, etc., form part of each month's contents. The April number is published. Office No. 6 John st. Price $3 per annum.

Massachusetts Agricultural Report.—We are indebted to Chas. L. Flint, Secretary of the Massachusetts Board of Agriculture, for the first Annual Report of the Board. It contains a great deal of very useful information for our agriculturists.

National Magazine.—The May number of this valuable magazine has just made its appearance. It is profusely embellished with engravings, and in point of literary merit ranks among the first in the country.—Published by Carlton & Phillips, 200 Mulberry street.

California Chronicle—We are indebted to the publishers (Frank Soule & Co., of the "California Chronicle." for a file of that young but able and neatly printed daily paper. It is published in San Francisco, and does credit to all connected with it.

L'Invention—We are indebted to M. Gardissal, of Paris, for a copy of "L'Invention" for 1852 and 1853, neatly bound in one volume. This French magazine of new inventions is a very able and useful publication.

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